Internet Tools: AMosaic1.2, MUI, AmiTCP/IP, Mlink—Find Them On-Line!
Plus, A1200—The Amiga Surfer announced!

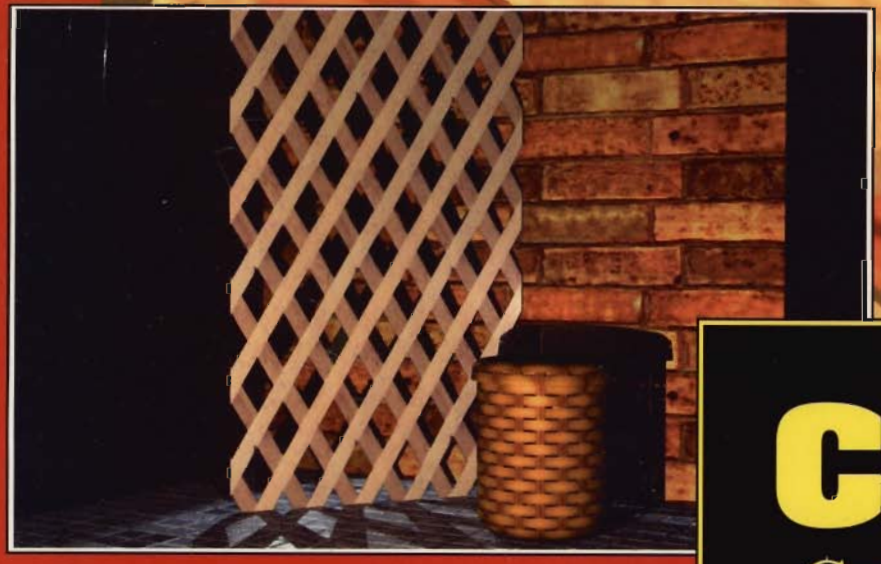
Amazing COMPUTING™ / AMIGA®

Volume 11 No. 2 February 1996
US $3.95 Canada $5.95

Your Original AMIGA® Monthly Resource



Cinema 4D



Snap Maps

Add functions to your favorite graphics program

C→C++

Convert your C programs to C++

TurboCalc V3.5

TurboCalc 3.5 is the powerful successor to the program TurboCalc 2.0, which defined a new standard for spreadsheet analysis on the Amiga®.



TurboCalc 3.5 uses an enhanced, easy-to-use user interface, utilising numerous innovations such as Drag & Drop for copying/moving or filling with the mouse, even easier selection of functions, freezing of sheet titles or the displayable status row. A multiple Undo/Redo of a variable depth reverses the effect of erroneous data or commands and can save much work, as can the Autosave and Backup options.
Thanks to the new object concept which allows insertion and printing of charts, texts, drawings, IFF-images ... directly in the sheet, sheets can now be more effectively created and designed. Charts (e.g. the new 3D bar and pie charts) can be directly placed beside the appropriate number sequence. Longer texts can be compactly accomodated in a cell comprising several lines. The formfeed visible in the sheet as well as the print preview function assist in achieving optimal layout on screen, saving both paper and time.
All this can be committed to paper with using improved print routines, or be integrated in your text processing software as IFF graphics or text (via file or clipboard).
A database mask is now available to allow easier management of your TurboCalc databases.

The most significant enhancements:
- Objects (chart, text, drawing, picture...) can be directly inserted into the sheet and have a macro attached, and also be printed in the graphic mode.
- Cells may contain several lines.
- Drag-and-Drop for moving/copying/changing the size of blocks by the mouse.
- Multiple Undo/Redo
- Chart module vastly expanded (new chart types, 3D, Auto-Refresh, ...).
- Preview for the printing of graphics (from OS2.0 on).
- Formfeed visible in the sheet.
- Data-Mask for an easier input/display of data records.
- Status row displayable with short online-help.
- (Maximal) number of columns increased: now up to 18278 columns can be used (A..ZZZ) (together with up to 9 999 999 rows)
- Clipboard support for easy data exchange with text processing programs.
- Sheets can be saved as IFF-images (e.g. for an easy export to text processing programs).
- Autosave (every x minutes, alternatively the last version will be kept).
- New Import & Export-Formats: Excel 4 (XLS) and Lotus 123 (.WK1/.WKS) both can import formulas, the xls-filter even keeps most of the cell formatting.
- Fast and easy access to the last used projects via "Smart-Open"
- Encrypting sheets using a very saphisticated cryptographic algorithm
- Complete support of OS2.x/3.x (Locale support, memory-pools, AmigaGuide).
- reqtools-Filerequester is supported!
- Amigo-Guide help file can directly be accessed from TurboCalc.
- Requester for inserting functions/macros now with categories to allow an easier and faster access
- Many new functions/macros.
- TurboCalc-Libraries for an easy expansion of TurboCalc with external functions, macros, objects, etc. (Documentation to program own libraries included)
- Numerous general improvements (e.g. saving the cursor position, special colors for every sheet, "hidden" password inquiry ...)

$69.95

GURU-ROM V6

Years of experience, technical know-how, and competence from the world's best Amiga software and hardware engineers are condensed in this penultimate product. It makes it possible for the user to productively and comfortably use SCSI, without sacrificing performance, risk of incompatibility, or waste of resources.



Stefan Ossowskis Schotztruhe and Ralph Babel, author of the well-known »Amiga Guru Book« and long-standing former system software developer for GVP, the American company known for its high-quality hardware products, present:

Guru-ROM Version 6
The final update for all GVP SCSI host adapters!

Together with exhaustive documentation, the »Guru-ROM« enhances each Series-II host adapter in many decisive and for the serious user essential features:
Universal: a SCSI driver without compromise for all Series-II host adapters and all »Combo« and »G-Force« accelerator cards for the Amiga 4000, 3000, 2000, 1200, and 500. This ROM module, which has been considerably extended in its code and feature set, replaces all previously distributed driver ROMs.
Fast: unparalleled transfer rates of up to 3.5 MB/s raw (Zorro-II limit), 3.1 MB/s measured with »SCSISpeed«, 2.4 MB/s measured with »DiskSpeed« - even on a stock 7-MHz 68000-based Amiga! All the while, the CPU typically retains 80% free processing time. Always maximum performance through the automatic selection of the currently optimal transfer mode (DMA, buffered DMA, PIO).
Multifaceted: supports all device types defined in the SCSI standard, such as hard disks, CD-ROM drives, streamers, scanners, and magneto-optical devices.
Compatible: complete support for the RDB standard resulting in trouble-free autoboot, automount, and the exchange of devices and media between two computers from Amiga OS 1.3 through 3.1.
Flexible: disconnect/reselect, synchronous transfers, and parity checking can be enabled separately for each device (even for devices without an RDB). Also complete write-protection (useful for kiosk applications and for virus protection) is possible.
Intelligent: maximum compatibility with nearly all hardware and software through special handling of all known firmware bugs of the most popular SCSI devices and DMA hardware bugs in the A3000 and A4000, workarounds for internal errors in the WD SCSI chip, as well as special modifications to account for defective application software.
Upward-compatible: completely compatible both to the SCSI-2 as well as to the SCSI-1 standard, thereby providing the broadest support for all devices on the market including those still to come.

Aminet 8



An update to the world's best-selling Amiga CD-ROM-series has just been released. Aminet CD 8, dated October 1995, contains more than 1 gigobyte (uncompressed) of software in thousands of archives. Since the release of Aminet 7 CD more than 500 MB new software has appeared. The current edition has a special focus on modules. More than 1.000 were included. Many modules are of a very high-quality and feature 8 voices. The excellent user-interface has also experienced further improvements and we are proud to present you a new CD-ROM of superior quality for the Amiga.

80 MB	Business software
45 MB	Communications
60 MB	Graphics & sound demos
30 MB	Development software
5 MB	Disk/HD tools
20 MB	Documents
60 MB	Games
45 MB	Graphics software
30 MB	Top-downloads
40 MB	Miscellaneous
400 MB	Music modules
10 MB	Music software
10 MB	Text software
30 MB	Utilities

Aminet 9



Coming soon! $19.95

Aminet Set 2



AMINET SET 2, dated November 1995, consists of approximately 4 gigabytes of software in 12.000 archives.
Whether you like applications, games, communications or programming, the SET gives you all you need. Easy to use index files and search facilities make accessing it a pleasure.

NEW $43.95

120 MB	Utilities
270 MB	Documents
40 MB	text software
75 MB	Business software
630 MB	Pictures & animations
170 MB	Graphics software
150 MB	Miscellaneous
630 MB	Graphics & sound demos
250 MB	Games
110 MB	Development software
10 MB	Disk/HD tools
5 MB	Hardware related
840 MB	Music modules
150 MB	Communications
30 MB	Music software

Aminet Set 1



Still available! $43.95

Subscription

Subscriptions to the Aminet series are available. There are expected to be six releases per year, and the subscription is actually for 4 CD's, regardless of when they end up shipping.
Aminet - subscription: $59.95



XiPaint V3.2

XiPaint is a leading edge, 24bit paint program. It's suited to the demands of novice and expert alike, and within a short time, you too will be able to produce colourful and creative art in 16.8 million colours. This version of XiPaint provides a professional paint program at an unbeatable price/performance ratio.
Overview of Features: · Diverse paint functions including colour, contrast and saturation adjustment · Mask, outline, recolour and fill functions · Airbrush with adjustable spray functions · Lightable function for manipulating montages and animations · Text functions with anti-aliasing using Compugraphic fonts · Support for a variety of graphic formats · Unlimited Undo · Diverse manipulation of alpha channel · Supports many graphic cards · Layers to combine different projects · ARexx port · Drag & Drop colours · External filter module · Extensive documentation · 60 textures, 50 landscapes, 30 other pictures and many fonts included.
XiPaint V3.2: $49.95



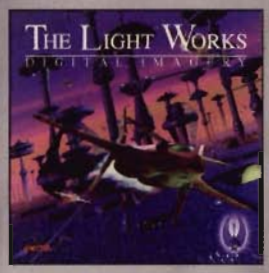
World Info '95

Your virtual guide around the world. Travel to places, you have never seen before, get informed about your next holiday destination beforehand, spend some time in the sun! Are you preparing for a geography test? Then you can find the info here! On this CD are information about all the 194 countries and about more than 700 cities, covering all sorts of subjects. Here is a short selection of information areas: Geography, Maps, Climate, Time zones, People, Language, Religion, Food, Politics, Flag, National anthem (see & hear), Economy data, Environmental issues, Holidays, Cities, City Maps, Metro Maps. These areas are explained thou- roughly. Difficult definitions are explained (what is e.g. the tundra climate). In addition to this there is a massive amount of pictures from all over the world available. A little dictionary covering the most important languages is also there as a little bonus. It is easy and intuitiv to use. You can enter and exit at any time. There are extensive possibilities for searching. A printout of all information is no problem at all. Minimum system requirements: A computer with Mosaic or NetScape (e.g. Amiga, Mac, OS/2, Unix, Windows)! Recommended system requirements: One of the above computers with a screen resolution of 640x480 with 256 colours and sound.
World Info '95: $59.95



Gamers' Delight II

This CD contains 1070 games for the Commodore Amiga from differing categories. Action, Jump & Run, Card Games, Puzzles, Strategy Games - a whole range of computer entertainment awaits! Gamers' Delight will hold you captivated for hours and guarantees long-lasting pleasure. 70 games are commercial versions - no public domain & no demos! This CD can be run on any Amiga with CD-ROM drive, 1 MB free memory and Joystick/Joypad.
Gamers' Delight 2: $29.95



The Light Works

Raytracing is a fascinating area of computer graphics. Pictures from the computer, perfectly rendered, fascinate people all over the world. The Amiga was the first computer to be used for raytracing, and today it is still a leader, with many high quality programs. A real artist of raytracing is Tobias J. Richter from Cologne Germany, whose detailed objects stun people, especially his space ships of famous science fiction films which are used to demonstrate the capabilities of raytracing programs. Now available on CD-ROM for the first time as a complete collection, his objects are highly detailed and extremely realistic due to the application of complex surface textures of the models. Until now it was difficult to acquire these objects in order to create your own scenes or animations.
The Light Works: $34.95



Meeting Pearls Volume III

The Meeting Pearls Volume III contains 650 MB of the finest FD software via a special user interface, which has been created to allow you to find the program of your choice with ease. The contents: 10 MB Packer, Cruncher, Archive Programs · 3 MB CD-ROM Utilities · 21 MB Communication and Network Programs · 5 MB Debugging Tools · 29 MB Development Tools · 13 MB Floppy, Hard Disk ans SCSI Programs · 8 MB Educational Programs · 9 MB Games · 35 MB Graphics Programs · 39 MB Internet Movie Database, Updated Version · 7 MB Midi Tools and Programs · 27 MB Mods · 12 MB Music Programs · 21 MB Pictures · 13 MB AmiTCP and more for Networking · 60 MB Documentation, CD-ROM Databases, etc. · 96 MB PasTeX 1.4 - not previous available on any CD-ROM · 15 MB Utilities · 30 MB HTML-Pages · Collections of datatypes, benchmark programs, icons, programs for amateur radio and electrical/electronic engineering are also included.
Meeting Pearls Vol. III: $13.95



CD-Write

CD-Write is based on a simple but ingenious technique. Because you cannot write an ordinary CD's using ordinary CD-ROM drives, CD-Write extends the Amiga OS in a fully OS compliant and completely transparent manner, to redirect modifications to CD's to a special area of your harddrive or other writable media. From now on you will be able to treat CD-ROMs like any other media, writing or deleting files, moving and snapshoting windows and icons, changing the icon tooltype fields, replacing icons with your favorite ones, rearranging directories, changing the default configurations of programs run directly from the CD-ROM, saving game high scores, etc. Minimum system requirements: Amiga 500, A600, A1000, A1200, A1500, A2000, A2500, A3000, or A4000 with at least 1 MB of RAM, OS 2.04 or higher, CD-ROM drive, hard disk recommended.
CD-Write: $57.95



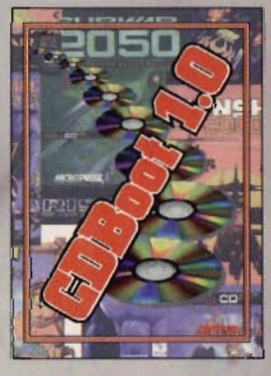
FreshFonts II

FreshFonts volume 2 contains 632 megabytes of fonts for almost any computer system. Most of the fonts are freely distributable, except for the Thienen fonts, which are exclusive on this CD. Each of these fonts is included in four different formats: DMF, Agfa IntelliFont, Adobe and TrueType. There are 231 font families on this CD (each containing of up to 8 different styles). They are classified in seven categories: Deco (63 families), Non-Latin (33 families), Pictures (16 families), Sans Serif (29 families), Script (36 families), Serif (36 families), and Thienen (19 families).
FreshFonts Vol 2: $29.95



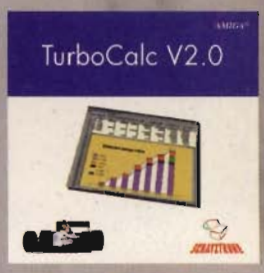
Gateway!

Gateway! offers NetBSD 1.0, a full featured UNIX-like operating system with both sources and binaries for the Amiga, i386, Sun 3, and other architectures. Go netsurfing with the large selection of supplied networking tools. Other supplied packages include a binary release of the X window system (X11R6) for the Amiga, with many additional clients, and packages such as perl, emacs, games, mail programs, and many megabytes of important text files such as RFCs and FAQs. A complete installation guide is available on the CD. There are also some AmigaDOS internet utilities, such as clients for AmiTCP and Envoy.
Gateway!: $22.95



CDBoot 1.0

CDBoot is a fantastic new product that enables you to use almost any CD 32 game on an A1200 or A4000 with CD-ROM drive and any filesystem. You can create a configuration file for each CD, containing information about the Joypad emulation. You can also save the highscore of each CD32 game. Use and installation of CDBoot is very easy, even for beginners, due to the excellent manual. Since the compatibility is very high, you can use 98% of CD32 games currently available. CDBoot is an excellent software solution for all Amiga enthusiasts who would like to enter the world of CD32 games.
CDBoot 1.0: $49.95



TurboCalc V2.1 CD

TurboCalc V2.1 CD-ROM is the unique software solution that defines a new standard for spread sheet applications on the Commodore Amiga®. Experience its nearly unlimited capabilities in all relevant categories.
TurboCalc V2.1 CD-ROM: $14.95



NetNews Offline Volume 1

NetNews Offline Vol. 1 is the first disk of a new bimonthly published series of Amiga CD-ROMs which contains all Amiga-related newsgroups from the internet. Every volume features about 50.000 articles which contain hot rumours, important information about all aspects of the Amiga, press-releases, discussions and flame wars, ... A newsreader is included. NetNews Offline is the cheap alternative of getting in touch with Usenet.
NetNews offline Vol. 1: $17.95

All products are available in your local Amiga shop or through national mail-order companies

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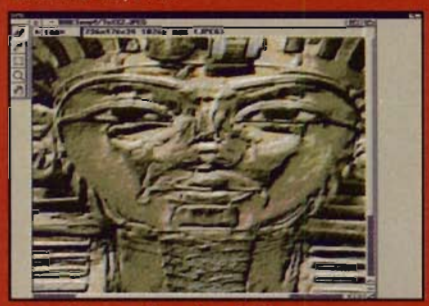
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AT's secret internet weapon. P.12



Cinema 4D, P.14



PageStream Plug-Ins, P.26



SnapMaps, P.30



One of the features in Cinema 4D, P. 14

10 New Products & Other neat stuff

Amiga Technologies readies the release of the AMIGA Surfer for internet users, AT opens a new know-all web site, Tangent Music releases a special CD in honor of the Amiga, Persistence of Vision RayTracer is about to be released in version 3.0, and more.

14 Cinema 4D

by Shamms Mortier

Cinema 4D has landed on the American shores with a very deep and full-featured art and animation environment.

26 New FX in PageStream 3

by Shamms Mortier

Add new functions to PageStream with an array of new plug-in effects.

30 SnapMaps

by Shamms Mortier

Save time and effort as well as improve your images with plug-ins for your favorite graphics programs.

34 Moving from C to C++

by Randy Finch

Upgrade some of your best C programs to C++ with ease.

48 On-Line

by Rob Hays

AMosaic1.2, MUI, AmiTCP/IP, Mlink, ppp.device, and iNTERiNSTALL are all important Internet tools—discover what they are and where to find them.



New Amiga Web Site from Amiga Technologies

Connect directly with the Amiga team in Germany through AT's new internet address—page 12.



DEPARTMENTS

Editorial 4

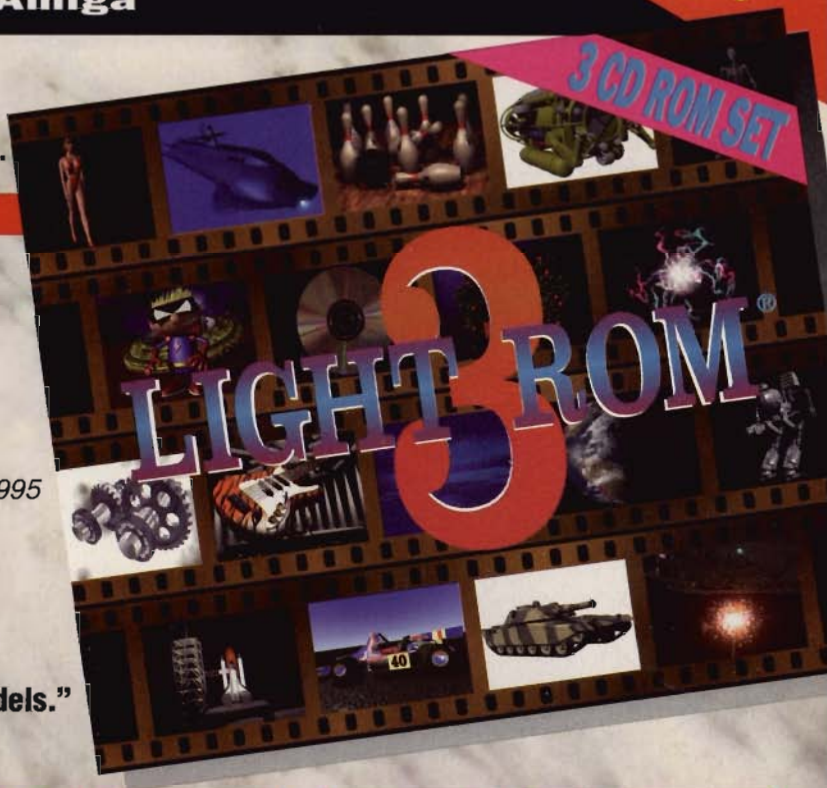
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LIGHT ROM 3®

for Windows/NT/Amiga

3 CD ROM SET $49.95

You have read about the resources available to artists through the Internet and BBS's, but you lack the time and finances to access them. LIGHT-ROM, published every 6 months, brings to you these resources along with exclusive contributions for an incredible value.



THE REVIEWS ARE IN

"The range of objects is very impressive. LIGHT-ROM is worth every penny."
Jason Holbourn • Amiga Format — January 1995

"A must have for Lightwave users."
Graeme Sandiford • Amiga Format — August 1995

"This CD is a must have for Lightwave users."
R. Shamms Mortier • Video Toaster User — August 1995

"This has got to be my favorite CD of all time."
Graeme Sandiford • Amiga Shopper — April 1995

"This CD ROM is an excellent value."
David Taylor • Amiga Shopper — August 1995

"The nicest collection I've seen for Lightwave models."
Erik Flom • Video Toaster User — October 1995

CD #1

★ Over 6,500 Lightwave objects divided into categories including Anatomy, Aviation, Botany, Buildings, Furniture, FX, Holidays, Household, Logos, Music, Ships, Space, Sports, Tools and Vehicles.

★ **LIGHT-ROM 1 had 2,300 Lightwave objects,**

★ **LIGHT-ROM 2 had 3,700 Lightwave objects &**

★ **LIGHT-ROM 3 has 6,500 Lightwave objects, an increase of 2,800 objects over LIGHT-ROM 2!**

CD #2

★ Collection of 3D objects in other formats including **Imagine** (175 megs), **3D Studio** (100 megs) and **Sculpt 3D** (30 megs).

★ 700 Textures in JPEG format complete with thumbnails.

★ Public Domain graphic programs and demos for the PC and Amiga.

★ Collection of 3D landscapes in Lightwave, 3D Studio and Imagine formats.

★ Video Toaster directory with wipes and CG fonts.

CD #3

★ Bonus "DEM ROM" includes over 1000 DEMs (digital elevation maps) for use with VistaPro, World Construction Set and Scenery Animator on any platform.

★ Use DEM ROM (along with any of these programs) to create realistic backgrounds or flights through your favorite scenery to incorporate into Lightwave or other 3D programs as background sequences.

★ All DEMs include thumbnail renderings of their topographical maps.

LIGHT-ROM 3 has over 1.5 gigabytes of new data compared to the previous issue.

Dealers, call 1-800-265-4041 for distribution information.

3 CD ROMs for only $49.95 plus shipping.
Shipping and handling is $4.95 for U.S. & Canada – $6.95 International.

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Editorial Content

Amiga Surfer—Great News?

I received a call the other day from an Amiga dealer who had read *AC* and was upset with how positive he believed we had made everything sound. He felt that the Amiga had an opportunity, but that the current policies for dealers (he stated dealers, who order directly from Amiga Technologies' distributor, are required to purchase ten Amigas at one time and pay for them in advance) were too restrictive to allow the market to develop.

Such restraints would require dealers to have several orders booked and paid before they could order the product. It would be nearly impossible to kick-the-tires of a new Amiga and pick one up that day unless the dealer was fortunate enough to have a few left from his last big order. The dealer had a point.

While the dealer was upset with what he considered a too positive position, an Amiga Technologies executive had told me just before that we were too negative. The truth is, AC continues to present the facts of the Amiga market as clearly focused as we are able. This means we do get excited with good news and we do become deflated with negative information. However, many things are looking up for the Amiga.

The AMIGA Surfer

On page 12 of this issue, we have an article about a new A1200 package soon to be released from Amiga Technologies. This package is a ready-to-run internet computer with all the software, hardware, modems, and even internet access. AT also plans on releasing the software package separately to current Amiga users.

Without getting too excited (after all they will need to market it), AT has offered consumers a product everyone else is trying to create. IBM, Apple and many others are attempting to develop and release a $500 internet box that plugs onto your television and allows you to access the internet. There will be no hard drive, no floppy drive, and almost no means to expand it.

For around $800, Amiga Technologies will offer the AMIGA Surfer. A full-powered computer with expansion capabilities, software libraries, and more. Now you see why it is sometimes hard not to sound too positive about the Amiga's future.

Amiga Technologies in Köln

In a speech on November 11, 1995 at the Computer 95 Köln, Germany, Petro Tyschtschenko of Amiga Technologies stated, "Amiga shall become the best platform for Multimedia, 3D software, graphics processing, Internet and many more applications." He followed this up by announcing a new A1200. "We plan to present the A1200 + in May. This model will feature either the Coldfire processor from Motorola, or the 68030 at 40 MHz. SIMM sockets will be integrated directly on the motherboard to allow easy memory expansion. The A1200 + is scheduled for the CEBIT in March 96."

In addition, Mr. Tyschtschenko also offered expansion information on the A4000. "This is going to be addressed first with the 060 board that we will market in early 96. Then, in 1st quarter 97, the Power PC 604 will replace the 060 in the new high-end model. Of course, the operating system will have to be ported to the new RISC-Processor."

As Mr. Tyschtschenko discussed set top boxes with A1200 hardware, he also announced a new drive for the A1200. The Q-Drive is a quad speed CD ROM drive that "plugs into the PCMCIA connector and is provided with software to enable it to play CD 32 titles."

AC's GUIDE Delayed

Our most important task in creating AC's GUIDE is to provide a complete resource to Amiga products and services. Doing that after the Amiga market has been dormant for so long has been extremely difficult. Our staff works the problem almost daily (we do take time out to complete issues as required). The result of our efforts to date—a large amount of unanswered questions. Many vendors have either ceased completely or have sold their products to another company. It is not unusual to chase one product through three or four different companies. However, these are easier to handle than the large number of developers who do not bother to respond at all.

This is why the current GUIDE is still in production. We will complete it soon (come what may). Any vendor who has not responded will either be left out of the GUIDE altogether or listed as nonresponsive. When a customer reads that a vendor is nonresponsive they will probably assume that the vendor will not be responsive to their needs either. This would be a shame.

The Amiga community needs all of its available products. No company is too small to be important to this community. If you have a product and you have not notified our offices—do so now by faxing us a 508-675-6002. If you don't want to be involved, OK but you are going to miss some exciting times.

Sincerely,

Don Hicks
Managing Editor

Amazing COMPUTING / AMIGA

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Cinema 4D

Oregon Research is proud to present a new world of Amiga rendering and animation. Cinema4D is packed with powerful features that will satisfy the most demanding users. All this power with an intuitive easy user interface that actually helps you work!



Cinema4D provides a flexible multi-tasking development environment with powerful capabilities including window-based realtime interactive modeling directly in 3D, basic and complex primitives with uncountable variations, easy object manipulation, moveable tool, object and texture lists, user definable object hierarchies, MORE!



The Cinema4D animator breathes life into your objects and scenes, allowing you to effortlessly create your own reality. Whether your taskforce is docking with a new spacestation, or you're exploring around the darkest dungeon - with Cinema4D it's simple. With just a few mouse clicks you will have your objects move fluidly and realistically through time and space.

Cinema 4D's features include:

- Interactive real-time modeler, Edit directly in perspective
- Screaming fast rendering times,rendering always cancellable
- Moveable tool palettes, Keyboard shortcuts, Undo function
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- Imports and exports all common modeling formats.

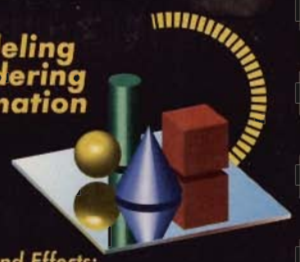


Objects:

- User-editable object primitives
- Complex objects (mannekin, morph, path, skinned, lathed, extruded, fractal, displacement, sun, text objects)
- Fractal mountain landscapes; Unlimited object numbers
- Easily editable object hierarchy; Direct point editing
- Polygon and 3 spline style models; Scale modeling



Modeling Rendering Animation



Tools and Effects:

- Flexible tools for object manipulation (warp, jitter, bend, center, align, joining, distort, spin, smooth, extrude...)
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- 26 light styles; Spot-, Sun-, ambient and colored light
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- Unlimited expandability with plug in open architecture

Rendering:

- Screaming fast rendering, Optimized algorithms
- Rendering can be started separately - fully multi-tasking
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Professional Animation:

- Keyframe animation for objects and the camera
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- Time list control for precise graphical control of animations
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Cinema4D runs on all Amigas with a minimum of 3MB RAM, and Kickstart 2 or higher. Cinema4D supports all Amiga and graphic card modes (HAM, HAM8, 24-bit,etc.) and recognized file formats (Imagine, Sculpt, DXF, Reflections, etc.). The package includes an extensive user manual with reference, tutorial & glossary sections, modeler, ray-tracer, convertor, scenes, objects,material library, textures, images, & online help.

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- Eliminates the need to ever use the shell!
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FEEDBACK

Dear AC:

I thought your Final Calc review in the November, 1995 issue was good. I would like to point out one error in the review. Final Calc does load Lotus 123 and Symphony files. I have loaded a file saved with an old version of 123, 2.01. In Symphony I have loaded files saved with version 1.01. The cells with labels are aligned (left, center, right), numbers cells are formatted (currency, percentage, general). Just do a recalc to update formulas. All I had to do was just open a Project with that 123 file, as is. I won't say just how easy it was here.

Sincerely,
Karl Swisher

Dear Amazing Amiga,

Like many others, I am glad you have managed to tough it out and I am looking forward to an updated Guide.

Regarding another matter, I know you have very limited pages available for each issue of Amazing Amiga, but I would like to put in my vote for reinstating the "Bug Bytes" section, in some manner. This would be especially helpful to those of us who are isolated holdouts of Amiga computing. In spite of all the hoopla and hype, research shows that the vast majority of computer users are not on-line, necessitating other means of seeking help when needed. This would seem especially true with the Amiga fans, as the user base has been allowed to dwindle to nearly nothing in many locales.

Sincerely,
Barlow Soper, Ph.D.
Ruston, LA

Dear AC

In response to Martin McKeever's lengthy letter in the November, 1995 *AC*, I have the following comments.

To begin with, I somewhat resent his belittling of the A3000 as "repackaging of old technology", as I am the proud owner of two of them. I would ask Mr. McKeever to try and run SCSI devices on his A2000 without taking up a valuable zorro slot with a 2091 or similar card, or to turn on his A2000 from the front, which seems to be so important to him (yes, the 3000 has a power switch on the front of the console). Not even the old A4000 has a built-in SCSI interface.

As for his complaints about the 4000T design featured on the July cover, I agree with him that the cost of the dramatic re-tooling necessary for such a dramatic design change would be forbidding, especially for a company looking to recoup its $10 million-plus investment as soon as possible. Not only that, but since they have been consulting with former Commodore employees, and not a single Amiga enthusiast I know liked the design, I doubt that they had any true intentions of pursuing it.

So why the strange design? I have a theory. Amiga Technologies had a twofold problem. The first was to announce as widely as fiscally feasible that the Amiga had returned. By publishing such a talked-about design, not only did the entire Amiga community take notice, but it might have been newsworthy enough to get some mention in one of the generic computer magazines. Also, by showing off a radically-changed design, Amiga Technologies symbolically divested themselves completely from the stigma of Commodore, a name hated by many.

Fortunately, the recent Video Toaster Expo revealed a few things. First, the actual 4000T's have a much more conservative design, although still different from the original. Also, NewTek proclaimed 100% compatibility with the Toaster 4000. 35,000 A1200's have already been sold in Europe, and they are trying to catch up to an 85,000-unit backlog. The posters Amiga Technologies brought with them from Germany stated that Amiga was "back for the future". It is clear that in spite of the spurts of the last few months, Amiga Technologies is up and running at full speed.

Future development has not been scrubbed either. Although the AAA chipset was never discussed (the rumor is that it is already obsolete anyway), they did announce current development of an Amiga CPU based on the Power PC architecture. It will theoretically emulate 060 faster than an 060. Also in the works is a DEC Alpha zorro card for superfast rendering.

We have all been understandably impatient for the last 18 months, wondering if our beloved Amiga would disappear entirely from the face of the earth. It is therefore understandable that we would be so eager to hear news once Commodore was purchased, and angry when no information could be given. Consider that the first piece of information that was given out widely, the old design for the 4000T, was greeted with much venom. I'm sure that Amiga Technologies found out that in the case of the Amiga and its users, PR is better left on the side of caution, and it was better to wait until a product was in its absolutely final stages before announcing anything about it, to preempt any disappointment from broken promises based on preliminary work which were later changed through the development stage.

Although Mr. McKeever is understandably upset, I hope that what Amiga Technologies has done in the last month or so will serve to calm him. Indeed, since the Amiga nearly went into the black hole of corporate bankruptcy, we should be thrilled that someone bought the technology, and is continuing to support it. Constructive criticism will no doubt be welcome, but let's not be negative about Amiga Technologies, since they actually did succeed in getting 1200's back into production in only a few months, even after over a year of closed plants and laid-off technicians. Kudos to them, and the best of luck, for the sake of all Amiga enthusiasts!

Brad DeMoss •AC•

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By popular demand, this special edition of the 1994 **FrozenFish** is the first of the "fish line" to be PC compatible, allowing Amiga users with PC CD-ROMs access to the "fish disk" archives. FrozenFish '95 contains 100 "fish disks", making it the most complete library of Fish material available. Archived on a per-floppy basis, this multi-platform CD is fully readable on all systems, including Amiga, MS-DOS, Windows, OS/2, Mac and UNIX. Each directory contains a standard "FILES.BBS" file.

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GoldFish Volume 3 marks a change in the GoldFish series by presenting material unarchived on a single CD format with user friendly access system allowing most programs to be reviewed and executed from a centralized interface. Volume 3 contains material from FreshFish Volumes 8-10 as well as the latest PD software. The GoldFish series represents an effective method for users to maintain their "fish library" in a more periodic manner.

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GoldFish Volume 2 $19.95 – 2 CD set
GoldFish Volume 1 $19.95 – 2 CD set



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FreshFish $19.95
Subscriptions (4 CD's) $59.95

E.S. Productions CD Archive created by Eric Schwartz, contains all of Eric's previously released animations and artwork. Also included are several unreleased animations, dozens of unreleased pictures, Imagine and LightWave 3D objects used in creating some of the animations and a special set of icons. As a bonus this release introduces three new large animations as well as material from other Amiga artists and cartoonists Eric has worked with!

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NEW PRODUCTS

and other neat stuff

Tangent Music

Tangent Music, with former England Commodore executive David Pleasance, has announced the release of a new collection of music called *Everybody's Girlfriend* in honor of the Amiga's ten years in existance. Called "a celebration in music of ten years of the Amiga" by Tangent, the music is available either on CD or cassette, and includes songs such as "Living on the Bread Line," "Para Mi Amiga (Homage to Jay Miner)", and "Fiesta after the Siesta," along with others. The collection includes fourteen songs in all, inspired by and recorded with the Amiga. *Everybody's Girlfriend* is £11.99 for a compact disc or £10.99 for a cassette. There is also a credit card hotline: 0181-573-5614.

Aminet® 9

Schatztruhe has announced the release of Aminet® 9-December 1995. This newly updated Aminet boasts more than 1 gigabyte (uncompressed) of software in thousands of archives. Since the release of Aminet® CD 8 more than 500 MB of new software has appeared. The current edition has a special focus on games, and nearly 1,000 games are included.

Persistence of Vision RayTacer Changes and Corrections

In the December *Amazing Computing*, there is an article on the Persistence of Vision RayTacer (POV-Ray) written by Dave Matthews. Joel NewKirk, the Amiga representative on the POV-Ray Team (e-mail at 102627.1152@compuserve.com), notified us of several changes.

The *AC* article is based upon POV-Ray V2.2, which will soon be replaced by version 3.0 (expected first quarter of 1996) and which (according to Team members) is a greatly enhanced and expanded program. Some of the features new to 3.0 are internal animation looping, significant changes and additions to textures, objects, mathematical functions and atmospheric effects. Also new to version 3.0 Amiga will be a GUI front-end, and support for 16-bit and 24-bit displays under WB 3.0.

For more information on 3.0, there is a file called "POV3PREV.LHA" in the gfx/3d section of Aminet which contains specifications and some sample images. Further POV information can also be found at the Team's web and FTP sites: http://povray.org and FTP at povray.org.

Unfortunately, one of the images accompanying the article in AC, Figure 5, is incorrectly titled as an alien warship, which it is not. This is apparently a group of samples on a simple 3D form.

And last, but certainly not least, POV-Ray continues to be absolutely free.



Miss Captioned

In the December *Amazing Computing*, there is an article on the The Persistence of Vision RayTacer (POV-Ray) by Dave Matthews. *AC* had an incorrect caption on figure 5. The caption read, "Sample POV textures on an alien warship model."

The POV Team contacted *AC* and said that this is not a warship model—unfortunately, they did not tell us what it really is. Any guesses?

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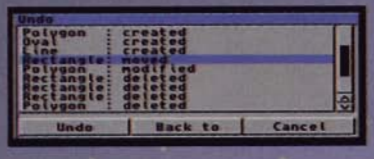
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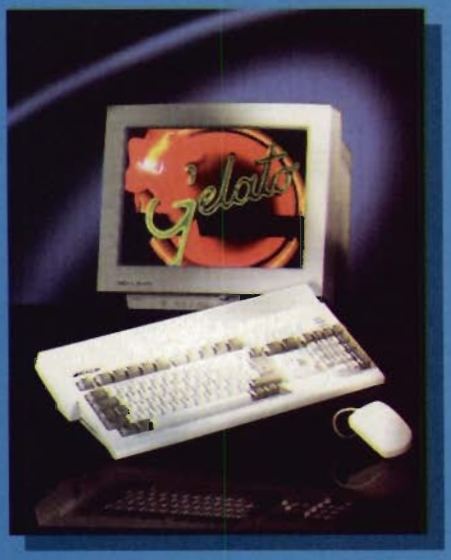
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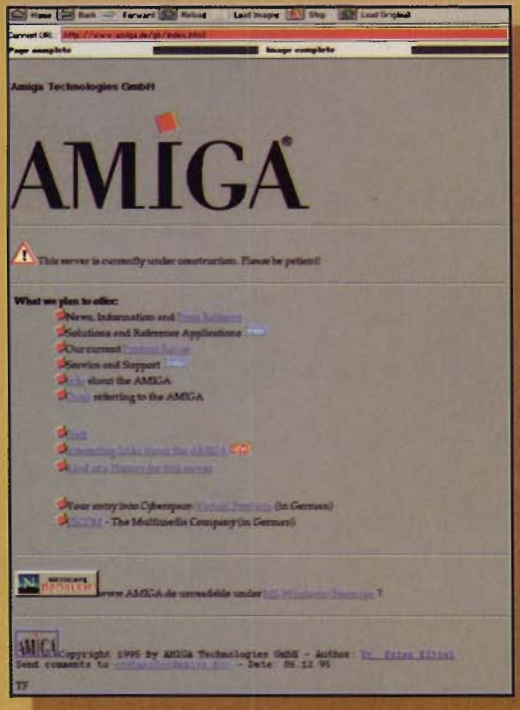
In a move to take advantage of the Amiga's unique abilities and the potential world wide internet market, Amiga Technologies has announced the AMIGA Surfer Amiga 1200 bundle. The AMIGA Surfer includes an AMIGA 1200 with 2MB RAM, a 260 MB harddrive, and a 14.400 Baud modem. The software will include a complete Internet bundle which corporate execs say will enable Amiga users to access all popular Internet services. The small computer which can be attached to a television will provide Web-Surfing, FTP file transfer (new drivers, updates, patches, shareware and freeware), IRC electronic teleconferencing with unlimited amount of participants and email with graphic, sound and animation support. To ease start-up problems, a country specific telephone cable is provided with the system.

Europeans will be able to register with IBM before March 31st and receive 100 hours of free access time.

The AMIGA Surfer will continue to include Amiga Technologies' "AMIGA Magic" bundle of productivity software. The AMIGA Magic software bundle includes WordWorth v4SE (wordprocessor), TurboCalc v3.5 (spreadsheet), DataStore v1.1 (database), Photogenics v1.2SE (graphics program), PersonalPaint v6.4 (paint program), Organizer v1.1, ScalaMM300 (multimedia authoring system—harddisk systems only), as well as the entertainment software Pinball Mania and Whizz.

At 1198 DM (about $800 US), the complete system will offer the public a unique entry into the internet revolution. AMIGA Surfer will be available in February in Europe and shortly after in North America.

AMIGA Technologies
Berliner Ring 89
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Fax +49 6252 709 520
url: http://WWW.AMIGA.DE



New Amiga Site!

Amiga Technologies has a new Amiga web site on the Internet, http://Amiga.de accesses Escom and Amiga Technologies latest releases. Amiga Technologies will publish speeches, corporate philosophy, new product announcements, and more. The site will also be hot-linked to other Amiga sites around the globe.

Correction:
In the New Products section of the January issue of *Amazing Computing*, the address for Amiga Library Services should have been listed as 610 N. Alma School Rd. Ste. 18, Chandler, AZ 85224, Tel. (602) 491-0442, Fax (602) 491-0048.

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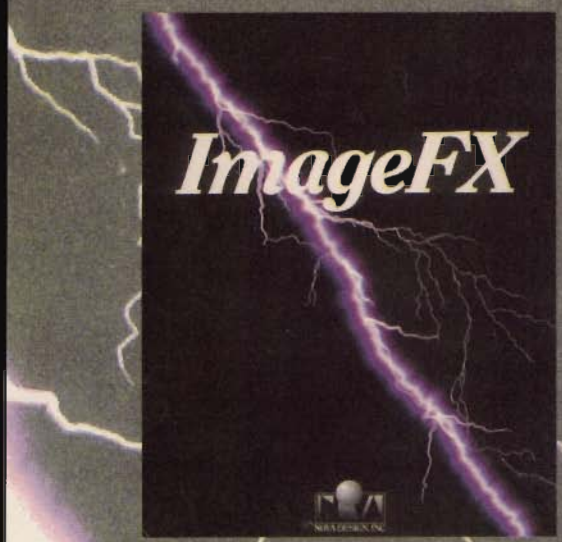
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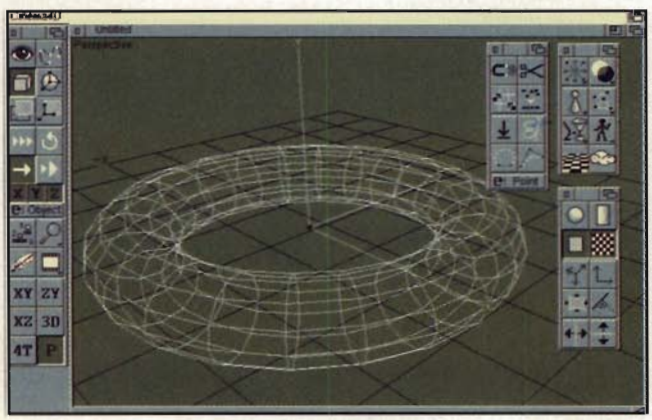
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Cinema 4D

by R. Shamms Mortier

During these dark times when the Amiga kingdom has been covered in the thick soot left by the fires of the Commodore disaster, it seems that other nearby Amiga realms have been somewhat less affected by it all. Europe, and England in particular, has kept the Amiga tradition alive. With a market base very different from the professional videographics American market, a few English developers have kept up a steady pace, upgrading their Amiga offerings and feeding the Amiga fans' hunger for new products.



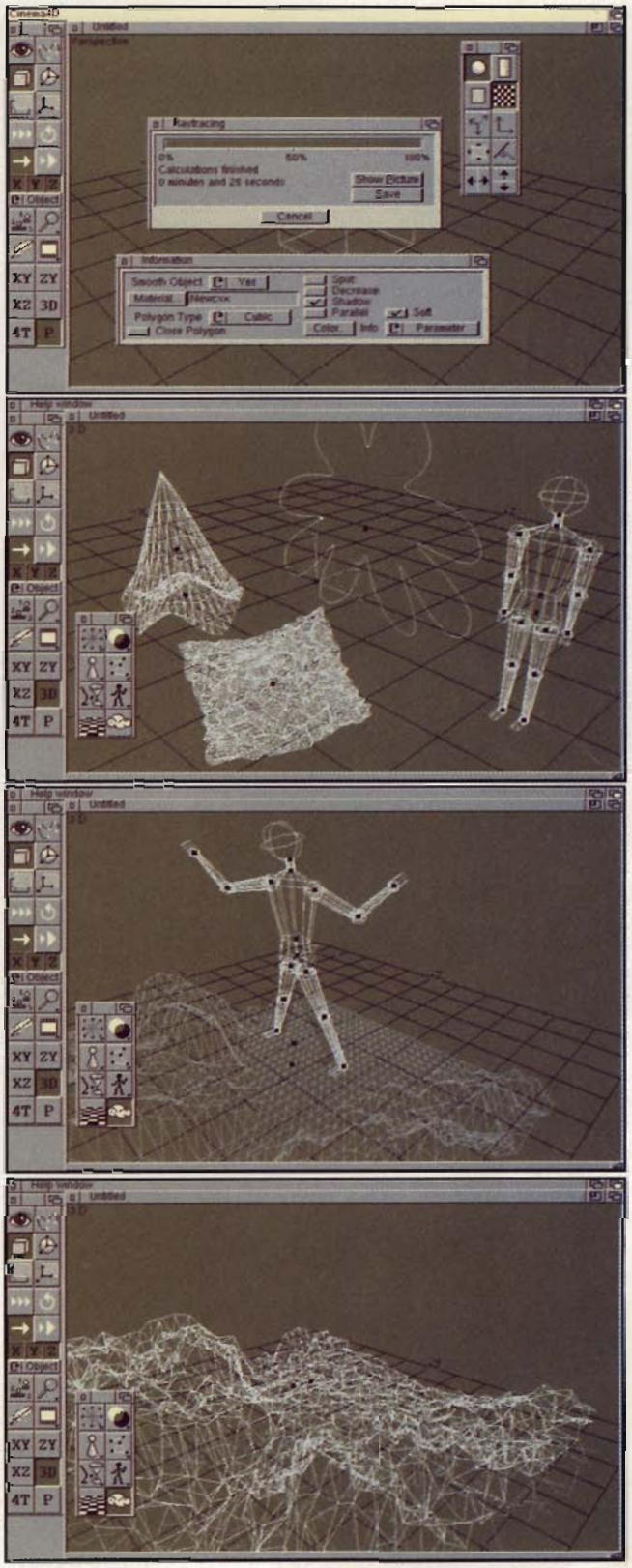
Most of these products have, of necessity, addressed the Amiga game market, with a few developers venturing forth into the area that the Amiga is best known for—computer graphics. The majority of creations have been in the realm of 2D, with products like Personal Paint and PhotoGenics. The "hit" 3D software has been, up to now, decidedly US products, such as Imagine and LightWave, though many European users prefer Real3D as well (a European package).

I have noticed a definite Eurocentricity in the way European Amiga magazines hype native wares and either neglect or in some cases go out of their way to slam US products when they get the chance (the most noticeable exception being the stand-alone version of NewTek's LightWave). My sources tell me that this is because US developers tried to lock out the rest of the world during the

Cinema 4D includes several pre-formatted scenes such as the one at the top of the page.

Cinema 4D's main editing window (left) holds a number of toolboxes and the scene display in a clear and comprehensive environment. All changes can be initiated visually through icons or numerically when exactness is at stake.

Cinema 4D has landed on the American shores with a very deep and full-featured art and animation environment.



Amiga's hey day, and now it's payback time. Whatever the truth or the grudges, now is not a time to hold to a chauvinistic view of things on either side of the Atlantic, but to look at all products honestly as either beneficial to the new and revitalized Amiga universe or not worth your investment.

Cinema 4D has been around for some time in Europe. Every once in a while I would see an ad for it in a European magazine. Lately, those mentions have heated up the air, so I suspected that something real was taking place other than European hype. The fact that a major American developer, Oregon Research, has taken over the task of distributing Cinema 4D in the States (it was most difficult to get hold of before this) made it available and inevitable that I would look at it closely.

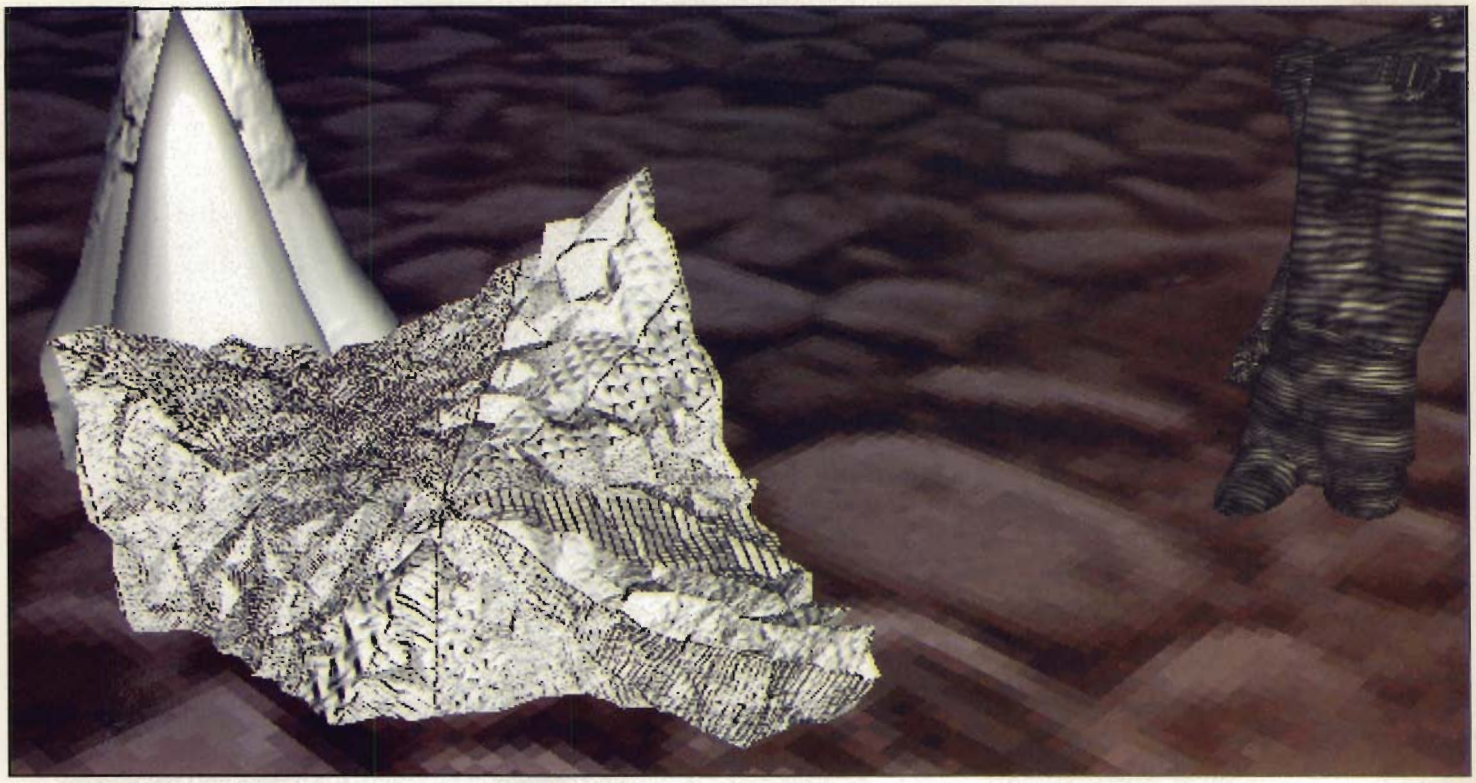
Cinema 4D

Cinema 4D comes on six disks and ships with a 400+ page manual. It requires an Amiga with at least KickStart 2.x, a hard drive, and 3 megs of RAM, but it responds more favorably to higher specs. For testing purposes, I installed Cinema 4D on an Amiga 2000, an Amiga 3000 Tower (with a Picasso card, which the software supports), and on an Amiga 4000. The look and feel seems more suitable for an AGA machine, though it worked fine on the other two systems as well. Installation is nearly automatic and a serial number is provided for the personal registration of the software. No dongles or other protection devices are needed.

The Interface

Certainly "LightWave", or maybe "Caligari" is the first thought that comes to your mind when the perspective grids pops to the screen, but a closer examination allows you to quickly dispense with any suspicion that this is a LightWave clone. This is not a clone of any other package, as testified to by both the toolbox icons and the balance of

The Rendering requester (top) shows the amount of time of the render, while the Information Window allows you to target specific properties to Objects.
The Objects Toolbar (upper middle) floats on the interface, giving you instant access to tools and objects.
Cinema 4D generates fractal objects like the terrain in the foreground (lower middle). It also has an automatic "figure" generator like the one shown here.
The "Crumpling" feature (bottom) instantly adds more convoluted detail to the on-board fractal terrain generator, giving it a more organic feel.



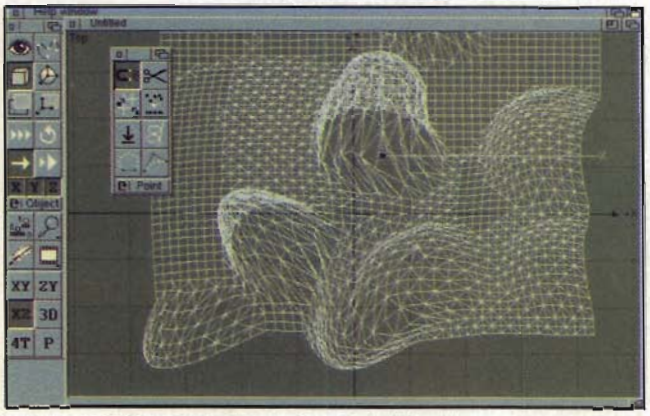
Crumpled and textured paper lies atop pebbles in this Cinema 4D rendering.

the way one maneuvers around in its virtual design world.

Most of the icons are not copies of anything we have become accustomed to, and a study of the documentation is vital if you desire to use this software as a creative tool. That is hardly a problem, however, since the manual, all 400+ pages, is well designed and capable of leading you tutorially by the hand through the arcane and sometimes convoluted world of 3D design and animation.

An Overview of Features

If you are a 3D feature wonk (and let's confess it, who isn't), then you might want to read carefully as we touch on some of the featured aspects of the software, prior to getting into more detail later in the article.



With magnetism turned on in the Points Toolbar, selecting and moving any point on an object obeys the magnetism parameters, and pulls other points in the vicinity along.

You can preview render a scene at any point by simply accessing the filmstrip tool in the toolbox and stating what rendering mode you would like to see (from monochrome to shaded wireframes, shaded polys, scanline, or full raytracing). This takes place on a separate screen with impressive speed.

Cinema 4D has large buttons in the toolbox to represent view changes, from the standard three axis views to a "3D" viewplane (camera view), a perspective view, and a simultaneous tri-view. For Amiga users, it's like having Sculpt 4D and LightWave at the same time.

As for Objects, Cinema 4D offers you thirteen different primitives to build complex models from, as well as five adjustable polygon objects (Lathe, Morph, Path, Extrude, Skinned), plus some special polygons like Star, Fractal (nice for mountains) and my favorite, Figure.

Figure is a fully functional 3D mannequin, ready for texture mapping and animating. What a great idea, making a 3D figure an accessible built-in part of a 3D design and animation program.

Polygons in a scene can be any number you would like, and all of the edges and vertices on any polygonal shape can be reshaped quickly in any view. All of these functions can be adjusted in real time. Cinema 4D also includes Boolean operators, meaning that you can drill and combine objects in a number of ways. At each step of the way, the speed of all operations is very impressive.

Cinema 4D also incorporates inverse kinematics, a very high end tool vital to animators, especially when organic models are part of a scene. Inverse kinematics, just in case the term is new to you, allows you to move hierarchical



The magnetism feature created these hilly surfaces from a flat plane in one easy step.

objects that are connected together so that all of the "children" objects in a hierarchy move with a parent (like a lower arm and hand and fingers moving along with an upper arm). Cinema 4D's inverse kinematic controls and processes are easy to put into action, and one of the best implementations I have seen of this capacity on any system (and that means all of the animation programs on the MAC and under Windows).

Rendering can be addressed internally from a pop-out renderer already mentioned, and 3D scenes can be exported to a number of formats, including: Cinema 4D, FastRay, Imagine, Reflections, Turbo Silver, VideoScape, PageRender and DXF. Allowing for DXFs means that the scenes can be rendered in most non-Amiga platform software as well if you have that need (LightWave also imports DXFs). And PageRender?! Though no longer on the market, it remains one of my all-time favorites (and obviously Hi-Soft respects it as well).

A texture and material library accompanies the package. The Undo function in Cinema 4D also has a "Safe Undo" feature, allowing you to recall a scene that was undone at a previous phase of your work. Now let's delve a little deeper...

The Object Bar

This is one of three alternate Toolbars you can bring to the screen at any time. Once you understand the icons, the Object Toolbar can aid greatly in the speed in which you access needed tools. The Boolean operator, for instance, is accessed without going to the top menu bar, a great advantage. All of the objects are represented here as well, giving you lightning access to them. Icons are also available for both the ground plane and sky textures. All of the toolbars can be made vertical or horizontal to your liking.

Lighting

Unlimited lights are supported and, in addition, you can choose to make selected objects glow with their own brilliance. Lights can be set as to both color and brightness, and Cinema 4D allows global lighting and spotlights. Distance/intensity fall-offs, shadowing, parallel, and soft lighting are included. The documentation offers a full lighting chart, the first time I have ever seen this in a 3D program.



The "Fractal" generator in Cinema 4D can create some interesting landscape features.

Rendering

One welcome rendering feature is that you can watch as a scene is rendered to the screen in whatever resolution your system supports, and at the same time be saving the 24-bit render to a file. This is very useful on non-AGA Amigas, since it means that saving the 24-bit scene still allows you a modicum of visual feedback.

All of the rendering modes can be set as to resolution and bitplane depth by holding down the shift key while choosing the render option. This brings up a requester that allows you to set rendering parameters. It takes a few tries to get used to this new way of operating but, within minutes, it will feel like second nature. Rendering to the screen is where AGA users will benefit most, since 256 color or HAM8 render modes are supported. You can even save the screen render if desired, in addition to saving the accompanying 24-bit version.

The Texture Bar

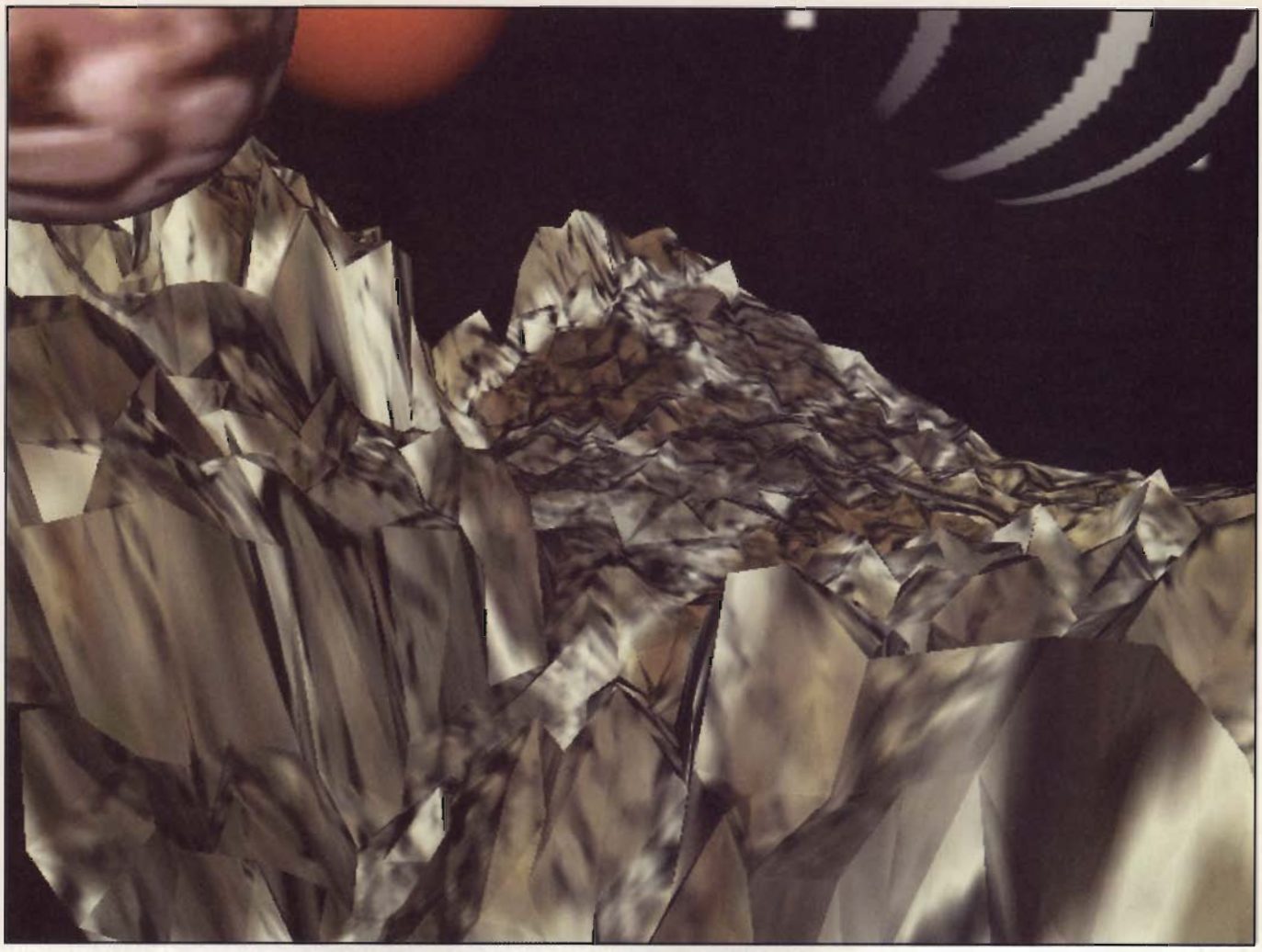
Like the Object Toolbar, the Texture Toolbar gives you more instant access to texturing tools. This Toolbar gives you instant access to wrapping types (spherical, cylindrical, planar), a tiling toggle (user input horizontal and vertical units), using the object or world axis as an origin for textures, adapting the texture to the object, orthogonal mapping, plus mirroring the texture prior to projection (horizontal and vertical). Textures appear on the workspace like any other object, and so can be moved and resized for animation purposes. Imagine an object on which textures float in a series, as if they were being projected from a distant space. This is possible in Cinema 4D.

The Point Control Bar

The third alternate Toolbar is the Point Control Bar, used for easy access to the tools used for reshaping and editing objects. The magnetism tool is one of my favorites for deforming objects, especially during an animation. This tool has a number of default shapes, from sine waves to smooth curves, and with the right settings you can reshape any polygonal surface.

Polygons

Cinema 4D has five different polygon interpolation formats: Linear, Cubic, Akima, B-Spline, and Jump. Linear creates polys with straight lines connecting points, Cubic creates a smooth curve that is interpolated



The same landscape as the one on the left with "crumpling" added gives more realism.

between the points with a tendency to overshoot tight bends, Akima does the same but without this tendency, B-Spline creates a curve that may skip the control points, and while Jump is a special curve fitting feature for animating. For mathematics students, the manual contains a more complete description of the theory connected with these interpolative methods.

Object Deforming

Distortions are applied according to the plane being addressed (X, Y, or Z) and then specific algorithms address the distortion principles to be applied. It takes a while to get the hang of what the mathematical relationships are to the visuals (we'll do a later *Amazing* tutorial showing the comparative applications of distortion algorithms), but the exploration is enjoyable.

Distortions are best appreciated in an animation, showing objects reacting to unseen forces. There are fifteen distortion algorithms, and the documentation lists all the formulas for study.

One of my favorite distortion tools in Cinema 4D is called "Crumple", and it does just what you think it would. Apply it to a segmented planar surface and watch it instantly become a piece of crumpled paper. The wrap function is also interesting, allowing you to take a selected object and shape it to a sphere, cylinder or path, bending its points in the process. All of the deformations have uses as logo animation devices.

Morphing and other effects

Explosions. Cinema 4D has them. Objects can be consigned to explode over time on one (axis), two (plane), or all three (spherical) viewplanes. Both forward and backwards time are supported. How about melting an object? Just enter the strength of the effect and watch your solid objects melt into a circular puddle. Wind effects? Yep. Make a flag wave in the breeze, or find other more arcane uses for this effect.

Cinema 4D's morphing effects demand that both the source object and the target have the same number of points and edges. This is a standard being moved away from in the industry at large, so it would be welcome if Hi-Soft developed a morphing system that did not require this restriction, though having morphing on board in any form is welcomed.

Cinema 4D offers three pulsing effects: Position, Size, and Direction, each of which initiate three different



Amiga fonts are translated to 3D fonts.

kinds of moving pulses to shudder through an object with selectable variance in amplitude, position, size, and proportion.

Animating

Cinema 4D has most of the animation tools that advanced Amiga animators have come to expect, including splined control over acceleration-deceleration time parameters, frame/speed settings, VCR-like controllers for playbacks, splits and joins for sequences, a full featured information display window, and more. Cinema 4D allows you to create animation paths by using either keyframes or polygonal paths. This is good, since neither method by itself can answer all of the problems and challenges faced by animators.

When a sequence is completed, you can also edit the keyframe's time positions, as well as adding more or deleting targeted keyframes, in an animation editing window. The animation keyframing controls should be intuitive for animators with even a modicum of experience, and easy to learn by the novice.

Magic Link

MagicLink ships with Cinema 4D, and looks like a very powerful 3D format converter. It translates textures, materials, and object hierarchies along with object formats amongst several programs (see the start of the article for targeted software).

Conclusions

At a time when it seems foolhardy to focus on another 3D animation and design program (after all, don't we have LightWave, Imagine, Aladdin 4D, Real3D...), Cinema 4D has landed on the American shores with a very deep and full-featured art and animation environment. It seems to have taken notice of all that have gone before, and incorporated at least the look and feel

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of its older cousins. It offers truly amazing depth at a good price, and also seems to be trustworthy when it comes to service and longevity (since the Amiga market in Europe, its home base, is booming). It will probably be appreciated differently by new users versus those of us already trained and chained to other software. It has features, however, totally unique that guarantees it will not be classified as a clone of anybody else. There are some things I would like to suggest for its next release.

Suggestions for the Future

I would like to see a function added that would allow faster access to a rendering configuration screen. It would also be helpful if there was an on-demand help screen connected to tool usage and properties. I found the text requester a bit strange. I loaded a font that had unreadable attributes, but instead of allowing me to escape this condition, the program kept telling me that the attributes could not be loaded, instead of allowing me to return to the requester to choose a new font.

I would also like to see an approximate estimate in the rendering window of how much time the rendering might take, so I can go get a cheese sandwich if possible while the Amiga is working.

It also took me a while to get used to the fact that clicking on an object's axis node and dragging does not drag the object. Instead, the program thinks you're trying to move the axis (rotational center and alignment characteristic). Instead, you click on the node to select the object, then

> Cinema 4D can certainly hold its own against any of the Amiga 3D competition, though various packages have strengths in different areas.

Setting various rendering resolutions might be better handled if there was a separate "resolutions" item in the menu bar (maybe even a rendering heading) rather than the present method of holding the shift key down while accessing a rendering mode to get the appropriate requester.

move off of the node to actually move the object. This is a bit confusing and should be rethought.

I would also like to see Postscript as an added import format, making PostScript Fonts, clipart, and vector drawing shapes possible to translate to 3D. There should also be an interrupt



Font objects can be distorted over time in a number of ways.

added to the "show picture" button in the "Emboss" menu. I thought that render times were a bit long, especially when texture maps were involved (a standard rendering took about 15 minutes with a two object raytraced scene on my A4000). Faster render should be incorporated.

Last Comments

My remarks above are meant as critical suggestions for possible changes, and in no way detract from the awesome depth and creative options in the software. Cinema 4D can certainly hold its own against any of the Amiga 3D competition, though various packages have strengths in different areas. I would even like to see LightWave offer some of the tools that Cinema 4D has.

If you price the 3D packages around, you will find that this one comes in at a remarkable cost per feature ratio, and, in many ways, it is a bargain considering its quality and the seeming devotion Hi-Soft has for continuing to upgrade it.

What is the most important conclusion I reached while working through the steps to be able to speak honestly about this software? It is that it actually exists, and by its existence proves that superlative software is still being developed for the Amiga, which should make everyone happy. Cinema 4D feels as if its been built for the Amiga and that it is determined to stay around for a good while.

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New FX in PageStream 3

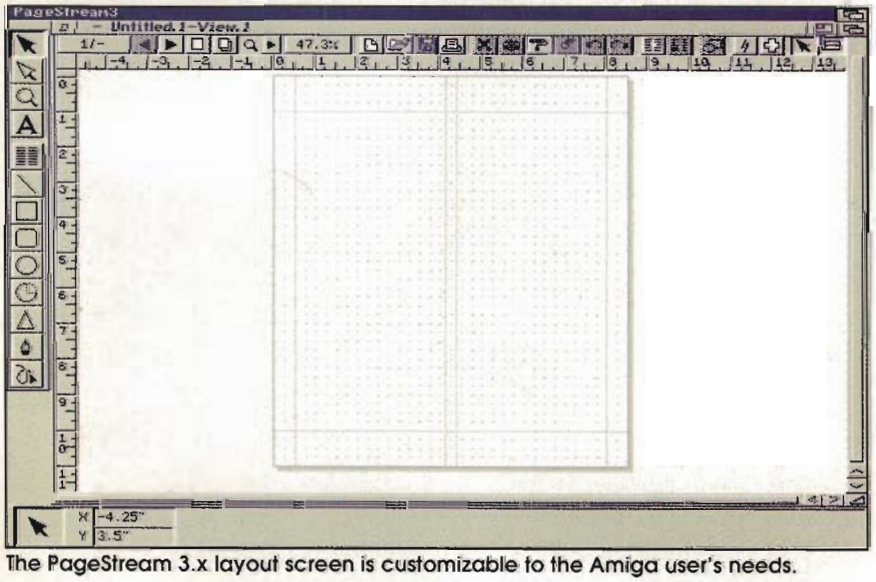
Add new functions to PageStream with an array of new plug-in effects.

by R. Shamms Mortier

I feel like an old timer, the archetypes that I used to think of when I saw Gabby Hayes on the Roy Rogers show as a kid (am I dating myself?). In my mind, an "old timer" is someone who remembers the world when it was very different from today. My children, for instance, used to ask me what life was like "when dad lived in the caves," making me feel somewhat like an old timer many years ago when my own beard wasn't this gray.

An "old timer" in relation to technology, because of the maddening pace at which things keep moving, is someone who remembers (and maybe even uses) last year's technology. In the Amiga universe, an old timer is someone who has suffered through the Commodore times, which by themselves are responsible for more gray hairs then we would like to think about or count.

Part of my old time attitude stems from being able to remember what certain software programs were like at their inception, and having a remembered and mindful image of how they have either progressed over the years, or, in some cases, when the date of their demise came about. PageStream, from Soft Logik, is a piece of software that I feel especially mentally attached to, and it is easy to wonder about its history.



The PageStream 3.x layout screen is customizable to the Amiga user's needs.

Not that many years ago (Five? Six?), PageStream was born. I remember it well because at the time I had just purchased my third or so Amiga "desktop publishing" program, loaded it onto my system, and watched in horror as the printout appeared, looking like some dot-matrix jagged document from across the River Styx. Having already passed the point of no return as far as my investments were concerned, and somewhat jadedly having been attracted to the ads for PageStream, I took the plunge. At the time, there were a couple of other Amiga DTP programs on the market, most notably Professional Page from Gold Disk, a hot seller.

A fierce competitive struggle ensued between Professional Page and PageStream over many years. Each camp had its warriors and detractors. Many users opted for Professional Page. It was more stable as far as crashes, and offered the kind of prepress functions that professional users acclaimed. All of the while PageStream, which as I remember was originally a port from the Atari (which in itself irritated many Amiga savants), looked less than professionally oriented to at least the loudest crowd.

But there was something I liked about PageStream from the start, the feel of the interface, its ability to allow for the infinite resizing of fonts, the way it handled graphics, and other

features that made me feel I could customize it to my needs. So, I jumped on board the PageStream bandwagon, where I have remained a rather outspoken passenger for many years—a PageStream "old timer" as it were.

Now that does not mean that everything Soft Logik has done or is doing now is OK with me. It is not. When Soft Logik charged customers for the upgrade before this one, and then delivered a quasi-finished product that embarrassed me and others that had stood by them for years, I protested everywhere I could, even in *Amazing* articles. Though probably based on a dire economic situation, in other words a need for cash flow by Soft Logik in the face of the Commodore debacle, it was not a wise decision by Soft Logik. When you release an unfinished product into this marketplace, you lose ten times what you might ever gain. It is always better to wait longer and make sure everything works. At the moment, I think some of the extras that PageStream is charging for should be incorporated into the software itself, even if the price has to be augmented a bit to pay the bills.

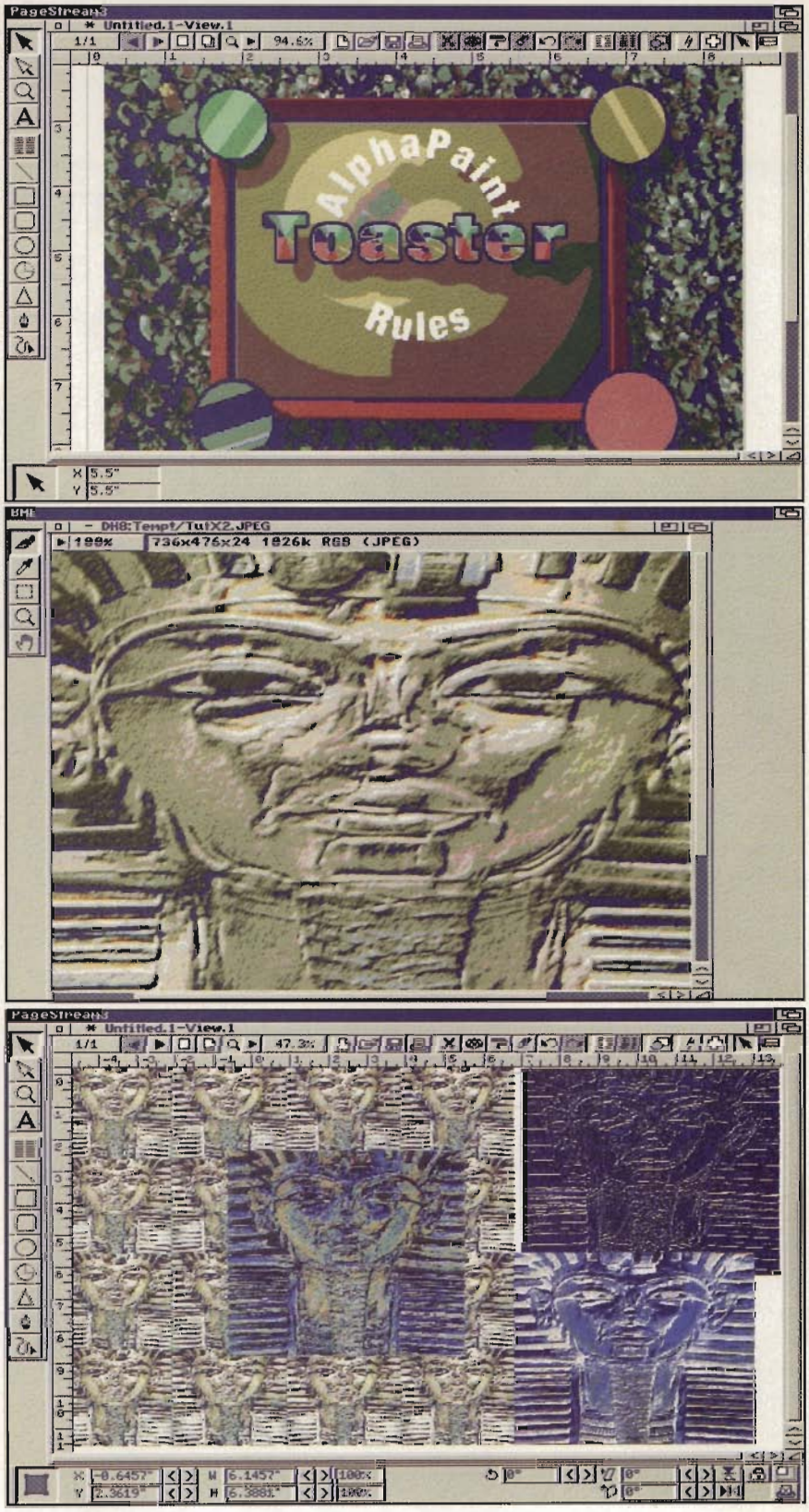
All of this aside, however, I can happily tell you that the present PageStream (version 3.0h2) is 95% of the way towards what I had always hoped it would be. Together with my Amiga and trusty HP III Laserjet PostScript printer, PageStream is more than paying its own way.

Filters and Effects

PageStream now has a number of filters and effects, in other words, "plug-ins", to use the appropriate industry terminology. I am sure that we will see many more of these in the future, both from Soft Logik as well as other independent developers.

Wordworth Filter

Wordworth is the best selling Amiga word processing package in Europe, although it faces heavy competition for that crown against Final Writer on this side of the globe. Soft Logik has become the distributor of Wordworth in North America, so it



The graphic you see on the PageStream screen (top) is a 24-bit JPEG. It is dithered down to 16 colors because of the Amiga 2000 it is running on. The picture was imported with the new JPEG filter. The BME program (middle) is included with PageStream, and this is where Gary's Effects reside. Gary's Effects (bottom) allows you to add a good number of image effects to your graphics before importing them into PageStream.



Text Effects pops to the screen in a visual display of the possibilities, adding more value to PageStream itself.

is logical that there would be a bridge between Wordworth and PageStream. After installing this filter, it is a snap to load formatted Wordsworth documents into PageStream.

There are some cautions, however. Wordsworth has text effects, tables, the ability to load in CGM (Computer Graphic Metafile) graphics, and its own hyphenation system. PageStream does not offer access to these Wordsworth features, but Soft Logik may offer upgrades to this filter online at their BBS number that can be downloaded.

JPEG Filter

The JPEG filter is simple to operate. You merely choose to place a graphic in your document, the software recognizes that it is a JPEG, and in it roars.

Gary's Effects

Gary's Effects work with the PageStream BME2 module (Bit-Map Editor), which is used to enhance and translate graphics prior to their importation into PageStream. Among the effects that this module addresses are averaging, median filtering, maximum/minimum, equalize, solarize, threshold, hue/saturation, gamma corrections, blurring, histograms, and convolves. BME2 ships with PageStream.

Text Effects

This is the fattest plug-in for PageStream thus far. It was designed to give you more varied control over text blocks so that your DTP publications can be more visually interesting. There are three main Text Effect options: DistortX (text warping tool), Bend Lines (adds finer increments to text warps), and Scale Text to Fit (needed for text on a curve effects).

Since PageStream has an open and welcoming ARexx port, you could script your own text effects as well as taking heed of those offered. Text Effects objects can be edited like any other PageStream object. The design of Text Effects is truly comforting to the user. All of the effects pop up in a visual display. A simple click on any one of the effects produces the expected result on the text. This is the best effects production tool I have seen on any platform, and makes PageStream a value added product.

Conclusions

Users who have the Amiga version of PageStream should know that there will soon be a MAC/PowerMAC (Spring '96) and a Windows (Later in '96) version of the program. All Amiga files will be transportable, so for those who work on other platforms in the workplace and/or at home, know that PageStream will create a DTP bridge amongst all of these platforms. The addition of the PageStream plug-ins assures us that there will be continued development on the Amiga version. I recommend PageStream 3.x to all Amiga DTP enthusiasts.

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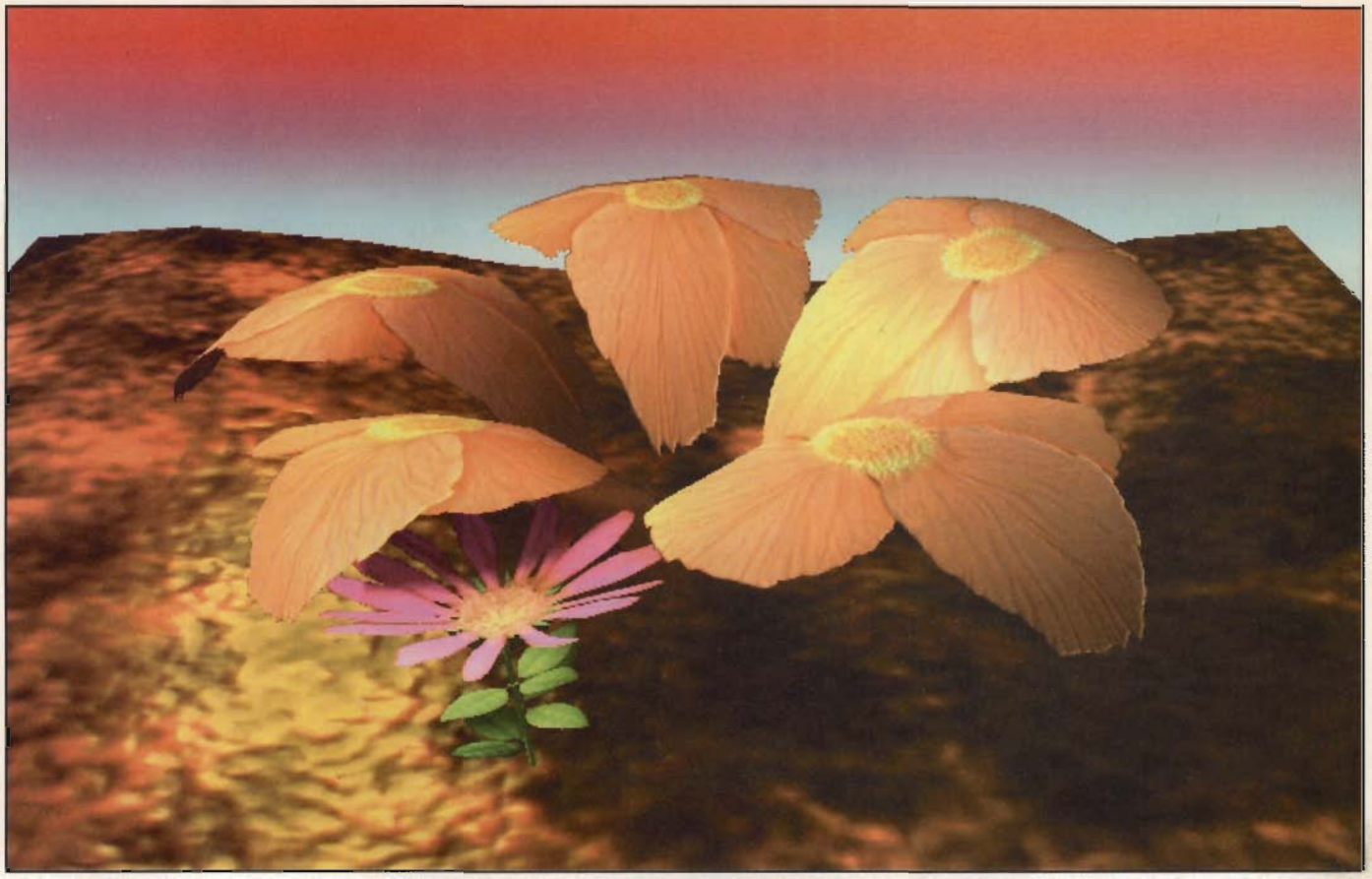
These are sample swatches from both the "Fields and Foliage" as well as the "Materials" Snap Maps volumes.

by R. Shamms Mortier

Videographics and animation, that is what the Amiga's main niche continues to be, and that is where the central action is as far as products on the shelves. "Clip Mapping" is an advanced modeling utility offered by a very few packages. The software that seems to do the best in the videographic realm, outside of the handful of media stars in the sky like LightWave, Imagine, and a few more, are the utility packages and plug-ins. Among the high end utility software you would count ImageFX from Nova Design and PhotoGenics from Almathera. But what about plug-ins?

Well, there are external plug-ins, programs that run by themselves but that address other software (Pixel3D is an example). Internal plug-ins are actually placed in a directory where they can be accessed from inside other software. The major Amiga packages that accept (in fact, welcome) plug-in utilities can be counted on one hand. Aladdin4D, Imagine, and LightWave are a few primary examples. On non-Amiga platforms, the idea and reality of plug-ins brings in hundreds of millions of dollars. On the Amiga, the figures are a bit more conservative, but growing.

Now that LightWave comes in a Windows flavor, the development of more plug-ins for LightWave can be expected. But what about the Amiga?

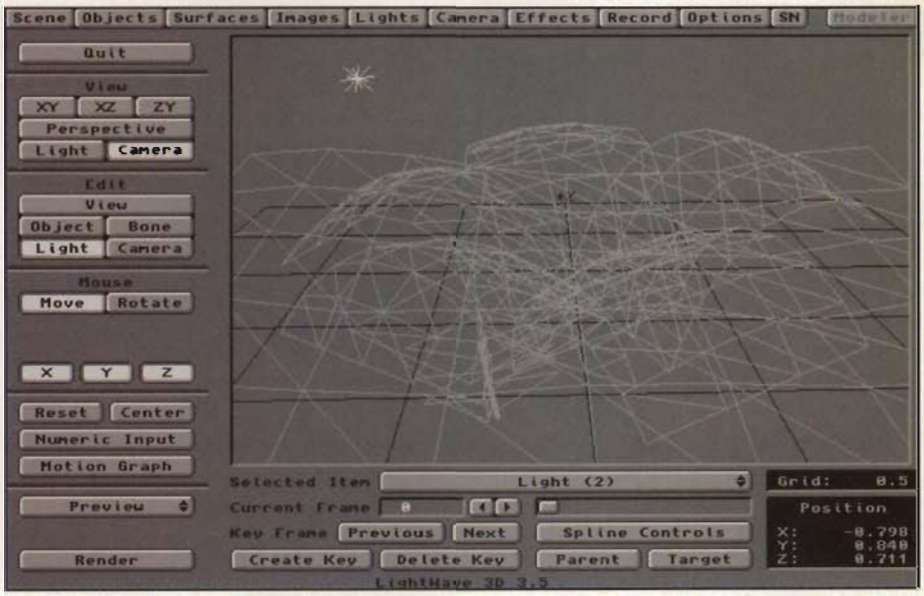


Snap Maps

It turns out that there are some excellent plug-ins available on the Amiga for LightWave, as well as for a few other 3D packages. The focus of our attention in this article is on a series of plug-ins called "Snap Maps". These plug-ins address LightWave, Imagine, and Real3D. I tested them on LightWave, but have little doubt that Real3D and Imagine users will find them equally as effective.

Snap Maps utilize what is known as "Clip Mapping". Clip Mapping allows you to take a shape and "cut" an object to its dimensions. Available at the moment only for the Amiga version of LightWave (as "Snap Map" volumes from Anti-Gravity Workshop), they can help you produce some very unique models.

Snap Maps actually apply clip mapping, bump mapping (for perceived depth), and color-image-pattern mapping all at the same time. This is a great time and headache saver, because trying to model what a Clip



This screen (bottom) is the LightWave interface. You can't see the Snap Maps applied to the objects until the render, but notice the fairly simple looking shapes.

In the final render (top), just for fun, I used flower Snap Maps where Ferns should have been. You can see a lot is possible with this plug-in utility.



This is another Snap Map scene from the "Materials" collection, rendered in LightWave.

Map can produce in minutes can take you literally hours or even days to accomplish by conventional methods. Amiga users are treated to two Snap Maps volumes: "Building Materials and Fabrics", and "Fields and Foliage".

Installation of the Snap Maps volumes is simple, but you had better have a good amount of hard drive space available. Each of the two volumes comes on a fat collection of disks, and there are clip maps, textures, and bump maps connected to each Snap Map sample.

Clip Mapping in LightWave

Each pixel in the image is addressed by a snap map, therefore lineup of the color maps and bump maps is vital (unless you like abstract chaos). Each point in the map either exists or it doesn't, as clip maps are only two color affairs showing where an object exists. That means that in the final animation, you can actually fly through a clip maps' open spaces (the space between a chain link fence, for example) even though the "object" the clip is addressed to may be a solid plane.

When you think of the rendering time saved (and the hard disk space) when comparing using a clip map and actually modeling a similar 3D surface, you immediately appreciate the value of a clip mapped scene. It may not look like much in LightWave's Layout, just a bunch of planes and other vanilla shapes, but the magic is in the rendering.

By the way, you save even more polygons because clip maps do not take notice of the amount of polygons in an object, just the whole object itself. Therefore no extraneous polys are needed, and this also speeds up rendering and storage space.

Also realize that shadows and reflections attend to the new objects clipped shape, not to the polygonal shape upon which the clip map is applied. Clip maps seem to give you the impossible_faster renders, more hard drive space, and a great amount of detail. Make sure that you store the snap map images in the images file, by the way, or rendering will be a pain.

Knowing where the various components are when using Snap Maps makes the application a breeze. Surfaces and Bump maps must also be assigned according to LightWave conventions. It is also best to click on automatic sizing unless and until you become a Snap Maps master (which should take a couple of days).

LightWave users who don't have Snap Maps in their library should make the effort to purchase them at the earliest. They are really useful and fun to play with.

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Moving From C to C++

Upgrade some of your best C programs to C++ with ease.

by Randy Finch

Several years ago I wrote a function evaluator for a 3D function plotting program. It allowed the user to type in a three-dimensional equation of the form Z=F(X,Y) and then calculate the value of Z for any combination of X and Y. The function evaluator was written in C. I wrote an article about it for *Amazing Computing* (October 1989).

Several months ago I rewrote the function evaluator in C++ using the SAS/C Development System v6.50. I found that the code was much more organized and easier to read and modify. Occasionally in this article, I will refer to the October 1989 article when comparing it with the new code listings here. Also, if you want to know more details about how the function evaluator works, you will need to read the older article. So, if you have a copy, please have it at your side while you work with this article.

C VS. C++

C++ adds many features to C. Some of these are stronger type checking, object-orientation, and inheritance. The first two were important to my program. Stronger type checking simply means that C++ is more persnickety about making sure that appropriate variable types are passed to functions and that variables are used in a program as they are declared.

As you know, C was fairly good at type checking, but not as good as it could have been. I have been bit several times due to this laxness. Most of the changes to the function evaluator code, as opposed to its structure, were to satisfy the type checking of the C++ translator. If you compare the new code with the old, you'll see many places where type casting is used in the C++ code, but not in the C code.

The object-orientation of the code is the major enhancement to my program. A C program is made up of data and functions. Many different data types are available and data structures can be declared as custom data types. Typically a function is passed one or more variables, the function then operates on the variables, and control is returned to the calling code. In complex code, this can lead to confusion when similar, but different, functions are used to operate on similar, but different, data.

C++ gets around this problem by combining data and functions into one entity called an object. The definition of an object is called a class. A C++ class is very similar to a C data structure. It contains data, but it also contains functions. A function that appears as part of an object is called a method. Thus, an object contains both the data it needs and the code to act on this data all in one place. If a program needs to tell an object to do something, it simply calls one of the object's methods.

A typical example is a vector-based graphics program that allows geometric shapes to be drawn on the screen. Each geometric shape could be an object created from a class definition. When an actual object is created in computer memory from a class definition, this is called instantiation, or creating an instance of a class. The object might contain a ChangeColor method.

If the object's name is GeoShape1, then something like the following statement could be used to change its color to red: GeoShape1.ChangeColor(RED).

Typically, when defining an object in C++, two files are created: the header (.hpp) file and the code (.cpp) file. The header file, also called the definition file, contains all the #include's, #define's, structure definitions, etc. as well as the class definition. The code file, also called the implementation file contains all the methods' code. By separating the code in this way, any program that needs to use an object can simply #include the header file and the object will be available to it. It is recommended that each object have its own header and code file. This allows one object to be changed without having to recompile any other objects.

FuncEval in C++

The C++ version of my function evaluator program defines a FuncEval class that contains all the data and methods necessary for creating a function, performing syntax checking, getting error information, and evaluating for values of X and Y. The functionality is the same as the older program, but easier to understand and modify. Let's look at it.

Listing 1 contains the header file (FuncEval.hpp) for the FuncEval object. Notice that all the syntax error definitions have been incorporated into this file. They were separate in the C version. The structure definitions CharStackType and NumStackType are the same as the CharStack and NumStack definitions in the C code. It is highly recommended that when defining a structure, StructName, that the structure be named StructNameType. Immediately following the definition, a typedef statement should be used to define StructName as a new 4variable of type StructNameType. This is what I have done for CharStack and NumStack.

The actual class definition for FuncEval appears at the end of Listing 1. Notice that the data and methods are divided into public and private. Public data and methods can be used by an outside program, whereas private data and methods cannot. Private data and methods can only be used by the methods within the object.

Generally, it is not recommended that any data be public, only methods. If data needs to be changed by a program, it should do so through a public method. In the example of the geometric shape object, the color was changed by calling a method; however, it could have been done by making the color variable public and letting the program execute the following statement: GeoShape1.Color=RED.

By using a method to change the color, new features can be added to the object with no need to change the program that uses it. For the FuncEval class, all data and most methods are

private. The public methods are used for converting a function string, getting an error number, message, and position, and evaluating the function for values of X and Y. When a public method has the same name as the class itself, it is called a constructor. This is a special method that executes each time the class is instantiated.

The constructor is used for initializing variables and other tasks that need to be done before the object is used. Although the FuncEval class does not have one, a class can also have a destructor for cleaning up before an object is deleted. Its name is the same as the constructor but with a tilde (~) in front (e.g., ~FuncEval).

The code file for FuncEval is shown in Listing 2. All of the methods, except the constructor and the ones used for error handling, are the same as their equivalent functions in the C version with just a few exceptions. First, type casting is used in the methods to satisfy C++'s stronger type checking. Second, the method names are different than their equivalent function names. If the function name is CheckSyntax, then its equivalent method is named FuncEval::CheckSyntax.

The "FuncEval::" prefix associates a method with the FuncEval class. Other objects can have a method with the same name. As for the constructor, it simply initializes the error position to zero.

Listing 3 shows a program, Main.cpp, that uses the FuncEval object to evaluate a user-defined 3D function. This program is similar to the Testfevl.c program in the October 1989 article. However, the code is somewhat different in order to interact with the FuncEval object properly.

At the beginning of main() is the statement: FuncEval *func = new FuncEval. The new operator instantiates the FuncEval class, creating an actual instance of the FuncEval object in memory. The pointer to this object is named func. The rest of the program is easy to follow, but notice how FuncEval's public methods are called: func->PublicMethodName. The name of the pointer is used because the method is part of the object. ~FuncEval

I hope you have enjoyed this short introduction to converting C programs to C++. If you have any questions or comments, you can send them to me via this magazine or Email me at RandyWrite@aol.com or rcfinch@HiWAAY.net. Also, by the time you read this, my home page (http://fly.HiWAAY.net/~rcfinch/rcfhome.html) should be up and running. I plan to make available the text and programs from all of my articles in Amazing Computing. Check it out. I look forward to hearing from you.

If you want to read more about the differences between C and C++, I highly recommend the book listed below. If you are already a C programmer and want to move to C++, you can't live without it. Sessions, Roger; Class Construction in C and C++: Object-Oriented Programming Fundamentals; PTR Prentice Hall, Inc.; 1992.

Listing 1

```
LISTING 1.  Header File for FuncEval Object
/*****************************************
*                                        *
*  FuncEval.hpp                          *
*                                        *
*  Definition file for FuncEval class.   *
*                                        *
*  Implementation in FuncEval.cpp.       *
*                                        *
*****************************************
*                                        *
*  Copyright 1995  Randy C. Finch        *
*                                        *
*****************************************/

#ifndef CLASS_FUNCEVAL
#define CLASS_FUNCEVAL
/*--------  INCLUDES  --------*/

#include <stdio.h>
#include <string.h>
#include <math.h>
#include <float.h>
#include <stdlib.h>
#include <ctype.h>
/*--------  DEFINES  --------*/

/* Variable Types */

typedef unsigned char UCHAR;
typedef unsigned int  UINT;
typedef unsigned long ULONG;

/* Errors */

#define MISPLACEDOP      1    /* Misplaced operator */
#define ILLEGALCHAR      2    /* Illegal character */
#define ILLEGALEXP       3    /* Illegal exponent */
#define ILLEGALFUNC      4    /* Illegal function */
#define MISSINGOP        5    /* Missing operator */
#define MISSINGOPRP      6    /* Missing operator or right parenthesis */
#define MISSINGLP        7    /* Missing left parenthesis */
#define MISSINGRP        8    /* Missing right parenthesis */
#define MISSINGPARM      9    /* Missing parameter */
#define LONEDECIMAL     10    /* Lone decimal point */
#define EXTRADECIMAL    11    /* Extra decimal point */
#define EXTRAE          12    /* Extra E in exponent */
#define STACKUNDERFLOW  13    /* Stack underflow */
#define STACKOVERFLOW   14    /* Stack overflow */
#define TOOMANYCONST    15    /* Too many constants in function */

/* Constants in formula */

#define NUMSYM    128  /* Number of constants allowed in function */
#define SYMBASE   128  /* Base value for constants symbols */

/* Stack size */

#define STACKSIZE 256  /* Stack size */

/* Functions in formula */

#define SIN         1  /* Symbol for sine */
#define COS         2  /* Symbol for cosine */
#define TAN         3  /* Symbol for tangent */
#define ASIN        4  /* Symbol for arcsine */
#define ACOS        5  /* Symbol for arccosine */
#define ATAN        6  /* Symbol for arctangent */
#define SINH        7  /* Symbol for hyperbolic sine */
#define COSH        8  /* Symbol for hyperbolic cosine */
#define TANH        9  /* Symbol for hyperbolic tangent */
#define EXP        10  /* Symbol for exponential */
#define SQRT       11  /* Symbol for square root */
#define LN         12  /* Symbol for natural logarithm */
#define LOG        13  /* Symbol for logarithn base 10 */

/* Logical stuff */

#define TRUE        1  /* Symbol for true condition */
#define FALSE       0  /* Symbol for false condition */
/*------ STRUCTURE DEFINITIONS ------*/

struct CharStackType {
   UCHAR c[STACKSIZE];
   long          top;
};
typedef struct CharStackType CharStack;

struct NumStackType {
   double n[STACKSIZE];
   long   top;
};
typedef struct NumStackType NumStack;
/*-------- CLASS DEFINITION --------*/

class FuncEval {
public:
   FuncEval();  // Constructor
   double Evaluate(double x, double y);
   int Convert(UCHAR *FunctionString);
   int GetSyntaxErrNum();
   char *GetSyntaxErrMessage();
   int GetErrPosition();
private:
   int SyntaxErr;
   char *ErrMessage;
   int ErrPosition;
   CharStack cstack;
   NumStack nstack;
   double Constants[NUMSYM];
   UCHAR CurConstant;
   UCHAR fstr[512];
   UCHAR NewExpr[256];

   char CharInStr(UCHAR *s, UCHAR c);
   void Deposit(double num);
   void Substitute(UCHAR symb, UCHAR *ptr, ULONG len);
   void RemoveSpaces(UCHAR *str);
   void AddZero(UCHAR *ptr);
   UCHAR CPop();
   char CPush(UCHAR c);
   UCHAR CTopOfStack();
```

```
   double NPop();
   void NPush(double n);
   char IsFunction(UCHAR c);
   char IsSymbol(UCHAR c);
   char Precedence(UCHAR c1, UCHAR c2);
   UCHAR *CheckSyntax(UCHAR *str);
   char ConvertConstants(UCHAR *str);
   void ConvertFunctions(UCHAR *str);
   char InfixToPostfix(UCHAR *str);
   double Calculate(UCHAR s, double n2, double n1);
};

#endif
```

Listing 2

```
LISTING 2.  Code File for FuncEval Object
/*********************************************************
*                                                        *
*  FuncEval.cpp                                          *
*                                                        *
*  Implementation file for FuncEval.                     *
*                                                        *
*  Definition in FuncEval.hpp.                           *
*                                                        *
*********************************************************
*                                                        *
*  Copyright 1995  Randy C. Finch                        *
*                                                        *
*********************************************************/

/*--------  INCLUDES  --------*/

#include "FuncEval.hpp"

/*-------  FUNCEVAL PRIVATE METHODS  -------*/

char FuncEval::CharInStr(UCHAR *s, UCHAR c)
{
   while (*s != NULL) {
      if (*s == c) return TRUE;
      ++s;
   }
   return FALSE;
} /* CharInStr */


void FuncEval::Deposit(double num)
{
   Constants[CurConstant - SYMBASE] = num;
} /* Deposit */


void FuncEval::Substitute(UCHAR symb, UCHAR *ptr, unsigned long len)
{
   *ptr = symb;

   if (len > 1) {
      do {
         ++ptr;
         *ptr = *(ptr + len - 1);
      } while (*ptr != NULL);
   }
} /* Substitute */


void FuncEval::RemoveSpaces(UCHAR *str)
{
   UCHAR *ptr;

   while (*str != NULL) {
      if (*str == ' ') {
         ptr = str;
         do {
            *ptr = *(ptr + 1);
            ++ptr;
         } while ( *(ptr - 1) != NULL);
         --str;
      }
      ++str;
   }
} /* RemoveSpaces */


void FuncEval::AddZero(UCHAR *ptr)
{
   unsigned long len;
   UCHAR *i;

   len = strlen((char *)ptr);
   for (i=ptr+len+1; i>ptr; --i)
      *i = *(i - 1);
   *ptr = '0';
} /* AddZero */


UCHAR FuncEval::CPop()
{
   if (cstack.top == 0)
      return 0;
   else {
      --cstack.top;
      return cstack.c[cstack.top + 1];
   }
} /* CPop */


char FuncEval::CPush(UCHAR c)
{
   if (cstack.top == STACKSIZE)
      return FALSE;
   else {
      ++cstack.top;
      cstack.c[cstack.top] = c;
      return TRUE;
   }
} /* CPush */


UCHAR FuncEval::CTopOfStack()
{
   return cstack.c[cstack.top];
} /* CTopOfStack */


double FuncEval::NPop()
{
   --nstack.top;
   return nstack.n[nstack.top + 1];
} /* NPop */


void FuncEval::NPush(double n)
{
   ++nstack.top;
   nstack.n[nstack.top] = n;
} /* NPush */


char FuncEval::IsFunction(UCHAR c)
{
   if ( (c >= SIN) && (c <= LOG) )
      return TRUE;
   else
      return FALSE;
} /* IsFunction */


char FuncEval::IsSymbol(UCHAR c)
{
   if ((c >= SYMBASE) && (c < SYMBASE+NUMSYM))
      return TRUE;
   else
      return FALSE;
} /* IsSymbol */


char FuncEval::Precedence(UCHAR c1, UCHAR c2)
{
   if ( (CharInStr((UCHAR *)"+-*/",c1)) && (c2 == '^') )
      return FALSE;

   else if ( (CharInStr((UCHAR *)"+-",c1)) && (CharInStr((UCHAR *)"*/",c2)) )
      return FALSE;

   else if ( ((c1 == '(') && (c2 != ')')) || (c2 == '(') )
      return FALSE;

   else if ( (CharInStr((UCHAR *)"+-*/^",c1)) && (IsFunction(c2)) )
      return FALSE;

   else
      return TRUE;
} /* Precedence */


UCHAR *FuncEval::CheckSyntax(UCHAR *str)
{
   int numLP = 0,
       numRP = 0;

   if ( (CharInStr((UCHAR *)"/*^E)",*str)) &&
        (strncmp((char *)str,(char *)"EXP",(UINT)3) != 0) ) {
      if (CharInStr((UCHAR *)"/*^",*str)) {
         SyntaxErr = MISPLACEDOP;
         return str;
      }
      else if (*str == 'E') {
         SyntaxErr = ILLEGALEXP;
         return str;
      }
      else {
         SyntaxErr = MISSINGLP;
         return str;
      }
   } /* if */

   for (;;) {   /* forever */

      if (*str == '(') {
         ++numLP;
         ++str;
         if ( (CharInStr((UCHAR *)"*/^E",*str)) &&
              (strncmp((char *)str,(char *)"EXP",(UINT)3) != 0) ) {
            if (*str == 'E') {
               SyntaxErr = ILLEGALEXP;
               return str;
            }
            else {
               SyntaxErr = MISPLACEDOP;
               return str;
```

```
      }
   } /* if */
   if ( (*str == ')') || (*str == NULL) ) {
      SyntaxErr = MISSINGPARM;
      return str;
   }
} /* if */

else if (*str == ')') {
   ++numRP;
   ++str;
   if (numRP > numLP) {
      SyntaxErr = MISSINGLP;
      return (str-1);
   }
   else if ( (!CharInStr((UCHAR *)"+-*/^",*str)) && (*str != NULL) ) {
      SyntaxErr = MISSINGOP;
      return str;
   }
} /* else if */

else if ( (isdigit(*str)) || (*str == '.') ) {
   char ExitFlag = FALSE,

   OneDecimal = FALSE,
   OneE = FALSE;

   if (*str == '.') OneDecimal = TRUE;
   ++str;
   if ( (OneDecimal == TRUE) && (!isdigit(*str)) ) {
      SyntaxErr = LONEDECIMAL;
      return (str - 1);
   }
   while (((isdigit(*str)) || (CharInStr((UCHAR *)".E)-+",*str))
         || (*str == NULL)) && !ExitFlag ) {
      if (*str == '.') {
         ++str;
         if (OneE) {
            SyntaxErr = ILLEGALEXP;
            return (str-1);
         }
         else if (OneDecimal) {
            SyntaxErr = EXTRADECIMAL;
            return (str-1);
         }
         else if (strncmp((char *)str,(char *)"EXP",(UINT)3) == 0) {
            SyntaxErr = MISSINGOP;
            return str;
         }
         else if ( (!CharInStr((UCHAR *)"+-*/^E)",*str)) &&
                  (!isdigit(*str)) ) {
            SyntaxErr = ILLEGALCHAR;
            return str;
         }
         else {
            OneDecimal = TRUE;
         }
      } /* if */
      else if (*str == 'E') {
         ++str;
         if (OneE) {
            SyntaxErr = EXTRAE;
            return (str-1);
         }
         else if ( (!CharInStr((UCHAR *)"+-",*str)) &&
                  (!isdigit(*str)) ) {
            SyntaxErr = ILLEGALEXP;
            return str;
         }
         else {
            OneE = TRUE;
         }
      } /* else if */
      else if (CharInStr((UCHAR *)"+-",*str)) {
         if ( *(str-1) == 'E' )
            ++str;
         else if ( !OneE || (OneE && isdigit(*(str-1))) )
            ExitFlag = TRUE;
         else {
            SyntaxErr = MISPLACEDOP;
            return str;
         }
      } /* else if */
      else if ( (*str == ')') || (*str == NULL) ) {
         if (CharInStr((UCHAR *)"+-E",*(str-1))) {
            SyntaxErr = ILLEGALEXP;
            return str;
         }
         else {
            ExitFlag = TRUE;
         }
      } /* else if */
      else {
         ++str;
      } /* else */

   } /* while */

   if( !CharInStr((UCHAR *)"+-*/)", *str) && (*str != NULL) ) {
      SyntaxErr = MISSINGOP;
      return str;
   }

} /* else if */

else if (CharInStr((UCHAR *)"+-*/^",*str)) {
   ++str;
   if ( (CharInStr((UCHAR *)")E+-*/^",*str)) || (*str == NULL) ) {
      if (strncmp((char *)str,(char *)"EXP",(UINT)3) != 0) {
         SyntaxErr = MISPLACEDOP;
         return (str-1);
      }
   }
} /* else if */

else if (CharInStr((UCHAR *)"XY",*str)) {
   ++str;
   if ( (!CharInStr((UCHAR *)")+-*/^",*str)) && (*str != NULL) ) {
      SyntaxErr = MISSINGOPRP;
      return str;
   }
} /* else if */

else if (isupper(*str)) {
   if (strncmp((char *)str,(char *)"LN",(UINT)2) == 0)
      str += 2;
   else if (strncmp((char *)str,(char *)"SINH",(UINT)4) == 0)
      str += 4;
   else if (strncmp((char *)str,(char *)"COSH",(UINT)4) == 0)
      str += 4;
   else if (strncmp((char *)str,(char *)"TANH",(UINT)4) == 0)
      str += 4;
   else if (strncmp((char *)str,(char *)"SIN",(UINT)3) == 0)
      str += 3;
   else if (strncmp((char *)str,(char *)"COS",(UINT)3) == 0)
      str += 3;
   else if (strncmp((char *)str,(char *)"TAN",(UINT)3) == 0)
      str += 3;
   else if (strncmp((char *)str,(char *)"EXP",(UINT)3) == 0)
      str += 3;
   else if (strncmp((char *)str,(char *)"LOG",(UINT)3) == 0)
      str += 3;
   else if (strncmp((char *)str,(char *)"SQRT",(UINT)4) == 0)
      str += 4;
   else if (strncmp((char *)str,(char *)"ASIN",(UINT)4) == 0)
      str += 4;
   else if (strncmp((char *)str,(char *)"ACOS",(UINT)4) == 0)
      str += 4;
   else if (strncmp((char *)str,(char *)"ATAN",(UINT)4) == 0)
      str += 4;
   else {
      SyntaxErr = ILLEGALFUNC;
      return str;
   }

   if (*str != '(') {
      SyntaxErr = MISSINGLP;
      return str;
   }
} /* else if */

else if (*str == NULL) {
   if (numLP < numRP) {
      SyntaxErr = MISSINGLP;
      return str;
   }
   else if (numLP > numRP) {
      SyntaxErr = MISSINGRP;
      return str;
   }
   else {
      SyntaxErr = FALSE;
      return 0L;
   }
} /* else if */

else {
   SyntaxErr = ILLEGALCHAR;
   return str;
}

} /* for */

} /* CheckSyntax */


char FuncEval::ConvertConstants(UCHAR *str)
{
   UCHAR *ptr;

   ptr = str;
   if ( CharInStr((UCHAR *)"+-",*ptr) ) {
      AddZero(str);
      ptr += 2;
   }

   while ( *ptr != NULL ) {
      if ( (CharInStr((UCHAR *)"+-",*ptr)) && (*(ptr-1) == '(') )
         AddZero(ptr);
      ++ptr;
   } /* while */

#if DEBUG
  printf("\nAddZero: %s\n", str);
#endif

   {  /* begin block */
   unsigned long j;
   UCHAR numstr[80];
   double number;

   ptr = str;
   CurConstant = SYMBASE;

   while ( *ptr != NULL) {
      if ( (*ptr == '.') || (isdigit(*ptr)) ) {
         unsigned long lennum = 1;

         while ( (CharInStr((UCHAR *)".E-+",*(ptr+lennum))) ||
                 (isdigit(*(ptr+lennum))) ) {
```

```
            if( (CharInStr((UCHAR *)"-+",*(ptr+lennum))) &&
                (*(ptr+lennum-1) != 'E') )
               break;
            ++lennum;
         }

         for (j=0; j<lennum; ++j)
            *(numstr+j) = *(ptr+j);

         *(numstr+j) = NULL;

         number = atof((char *)numstr);
         Deposit(number);
         Substitute(CurConstant, ptr, lennum);

         ++CurConstant;
         if (CurConstant >= SYMBASE+NUMSYM) {
            SyntaxErr = TOOMANYCONST;
            return FALSE;
         }

      } /* if */

      ++ptr;

   } /* while */

   }  /* end block */

   return TRUE;

} /* ConvertConstants */


void FuncEval::ConvertFunctions(UCHAR *str)
{
   while ( *str != NULL ) {
      if ( (isupper(*str)) && (!CharInStr((UCHAR *)"XY",*str)) ) {
         if (strncmp((char *)str,(char *)"LN",(UINT)2) == 0)
            Substitute(LN,str,2L);
         else if (strncmp((char *)str,(char *)"SINH",(UINT)4) == 0)
            Substitute(SINH,str,4L);
         else if (strncmp((char *)str,(char *)"COSH",(UINT)4) == 0)
            Substitute(COSH,str,4L);
         else if (strncmp((char *)str,(char *)"TANH",(UINT)4) == 0)
            Substitute(TANH,str,4L);
         else if (strncmp((char *)str,(char *)"SIN",(UINT)3) == 0)
            Substitute(SIN,str,3L);
         else if (strncmp((char *)str,(char *)"COS",(UINT)3) == 0)
            Substitute(COS,str,3L);
         else if (strncmp((char *)str,(char *)"TAN",(UINT)3) == 0)
            Substitute(TAN,str,3L);
         else if (strncmp((char *)str,(char *)"EXP",(UINT)3) == 0)
            Substitute(EXP,str,3L);
         else if (strncmp((char *)str,(char *)"LOG",(UINT)3) == 0)
            Substitute(LOG,str,3L);
         else if (strncmp((char *)str,(char *)"SQRT",(UINT)4) == 0)
            Substitute(SQRT,str,4L);
         else if (strncmp((char *)str,(char *)"ASIN",(UINT)4) == 0)
            Substitute(ASIN,str,4L);
         else if (strncmp((char *)str,(char *)"ACOS",(UINT)4) == 0)
            Substitute(ACOS,str,4L);
         else if (strncmp((char *)str,(char *)"ATAN",(UINT)4) == 0)
            Substitute(ATAN,str,4L);
      } /* if */

      ++str;

   } /* while */

} /* ConvertFunctions */


char FuncEval::InfixToPostfix(UCHAR *str)
{
   unsigned long i1=0, i2=0;
   UCHAR NextChar, TopSymbol;

   cstack.top = 0; /* Initialize stack */
   NewExpr[0] = NULL; /* Initialize expression */

   while ( *(str+i1) != NULL ) {
      NextChar = *(str+i1);
      if ( (IsSymbol(NextChar)) || (NextChar == 'X') || (NextChar == 'Y') ) {
         NewExpr[i2] = NextChar;
         ++i2;
      }
      else {
         for (;;) {   /* Forever */
            if ( (cstack.top == 0) || (!Precedence(CTopOfStack(),NextChar)) )
               break;
            if ((TopSymbol = CPop()) == 0) {
               SyntaxErr = STACKUNDERFLOW;
               return FALSE;
            }
            if (cstack.top != 0) {
               if ( (IsFunction( CTopOfStack() )) && (NextChar == ')') ) {
                  TopSymbol = CPop();
                  NewExpr[i2] = TopSymbol;
                  ++i2;
                  break;
               } /* if */
            } /* if */
            if ( (TopSymbol == '(') && (NextChar == ')') )
               break;
            if (TopSymbol != '(') {
               NewExpr[i2] = TopSymbol;
               ++i2;
            }
         } /* for */

         if (NextChar != ')') {
            if (CPush(NextChar) == FALSE) {
               SyntaxErr = STACKOVERFLOW;
               return FALSE;
            }
         }

      } /* else */

      ++i1;

   } /* while */

   while (cstack.top != 0) {
      TopSymbol = CPop();
      if (TopSymbol != '(') {
         NewExpr[i2] = TopSymbol;
         ++i2;
      }
   }

   NewExpr[i2] = NULL;

   return TRUE;

} /* InfixToPostfix */


double FuncEval::Calculate(UCHAR s, double n2, double n1)
{
   switch (s) {
      case '+':
         return (n1 + n2);
      case '-':
         return (n1 - n2);
      case '*':
         return (n1 * n2);
      case '/':
         return (n1 / n2);
      case '^':
         return ( exp(n2*log(n1)) );
      case SIN:
         return ( sin(n2) );
      case COS:
         return ( cos(n2) );
      case TAN:
         return ( tan(n2) );
      case EXP:
         return ( exp(n2) );
      case SQRT:
         return ( sqrt(n2) );
      case LN:
         return ( log(n2) );
      case LOG:
         return ( log10(n2) );
      case ASIN:
         return ( asin(n2) );
      case ACOS:
         return ( acos(n2) );
      case ATAN:
         return ( atan(n2) );
      case SINH:
         return ( sinh(n2) );
      case COSH:
         return ( cosh(n2) );
      case TANH:
         return ( tanh(n2) );
   } /* switch */
   return 0.0;  // should never happen, here to prevent compile warning
} /* Calculate */


/*------- FUNCEVAL PUBLIC METHODS -------*/


FuncEval::FuncEval()
{
   ErrPosition = 0;
}


int FuncEval::Convert(UCHAR *FunctionString)
{
   UCHAR *ptr;

   SyntaxErr = FALSE;

   RemoveSpaces(FunctionString);

#if DEBUG
  printf("\nRemoveSpaces: %s\n", FunctionString);
#endif

   strupr((char *)FunctionString);

#if DEBUG
  printf("\nstrupr: %s\n", FunctionString);
#endif

   if (ptr = CheckSyntax(FunctionString)) {
      ErrPosition = (int)(ptr-FunctionString)+1;
      return GetSyntaxErrNum();
   }

   strcpy((char *)fstr,(char *)FunctionString);

#if DEBUG
  printf("\nCheckSyntax: %s\n", fstr);
#endif
```

```
   if (!ConvertConstants(fstr)) return GetSyntaxErrNum();

#if DEBUG
  printf("\nConvertConstants: ");
  for(ptr = fstr; *ptr != NULL; ++ptr)
     printf("%d ", *ptr);
  printf("\n");
#endif

   ConvertFunctions(fstr);

#if DEBUG
  printf("\nConvertFunctions: ");
  for(ptr = fstr; *ptr != NULL; ++ptr)
     printf("%d ", *ptr);
  printf("\n");
#endif

   if (!InfixToPostfix(fstr)) return GetSyntaxErrNum();

#if DEBUG
  {
  UCHAR *ptr;

  printf("\nInfixToPostfix: ");
  for(ptr = NewExpr; *ptr != NULL; ++ptr)
     printf("%d ", *ptr);
  printf("\n");
  }
#endif

   return GetSyntaxErrNum();

} /* Convert */


double FuncEval::Evaluate(double x, double y)
{
   UCHAR symbol;
   long i = 0;
   double tempnum;

   nstack.top = 0;  /* Initialize stack */
   while (NewExpr[i] != NULL) {
      symbol = NewExpr[i];
      if (symbol == 'X')
         NPush(x);
      else if (symbol == 'Y')
         NPush(y);
      else if (IsSymbol(symbol)) {
         NPush( Constants[symbol-SYMBASE] );
      }
      else if (IsFunction(symbol)) {
         NPush( Calculate(symbol, NPop(), 0.0) );
      }
      else {
         tempnum = NPop();
         NPush( Calculate(symbol, tempnum, NPop()) );
      }
      ++i;
   } /* while */

   return NPop();

} /* Evaluate */


int FuncEval::GetSyntaxErrNum()
{
   return SyntaxErr;
}


char *FuncEval::GetSyntaxErrMessage()
{
   if (SyntaxErr) {
      if (SyntaxErr == STACKUNDERFLOW)
         ErrMessage = (char *)"Stack underflow";
      else if (SyntaxErr == STACKOVERFLOW)
         ErrMessage = (char *)"Stack overflow";
      else if (SyntaxErr == TOOMANYCONST)
         ErrMessage = (char *)"Too many constants in function";
      else {
         switch (SyntaxErr) {
            case MISPLACEDOP:
               ErrMessage = (char *)"Misplaced operator";
            break;
            case ILLEGALCHAR:
               ErrMessage = (char *)"Illegal character";
            break;
            case ILLEGALEXP:
               ErrMessage = (char *)"Illegal exponent";
            break;
            case ILLEGALFUNC:
               ErrMessage = (char *)"Illegal function";
            break;
            case MISSINGOP:
               ErrMessage = (char *)"Missing operator";
            break;
            case MISSINGOPRP:
               ErrMessage = (char *)"Missing operator or right parenthesis";
            break;
            case MISSINGLP:
               ErrMessage = (char *)"Missing left parenthesis";
            break;
            case MISSINGRP:
               ErrMessage = (char *)"Missing right parenthesis";
            break;
            case MISSINGPARM:
               ErrMessage = (char *)"Missing parameter";
            break;
            case LONEDECIMAL:
               ErrMessage = (char *)"Lone decimal point";
            break;
            case EXTRADECIMAL:
               ErrMessage = (char *)"Extra decimal";
            break;
            case EXTRAE:
               ErrMessage = (char *)"Extra E";
            break;

         } /* switch */
      } /* else */

   } /* if */

   else {
      ErrMessage = (char *) "Acceptable";
   }
   return ErrMessage;
}


int FuncEval::GetErrPosition()
{
   return ErrPosition;
}
```

Listing 3

LISTING 3. Test Program for FuncEval Object

```
/*******************************************************
*                                                      *
*  Main.cpp                                            *
*                                                      *
*  Test program for FuncEval.                          *
*                                                      *
*                                                      *
*                                                      *
*******************************************************
*                                                      *
*  Copyright 1995  Randy C. Finch                      *
*                                                      *
*******************************************************/


/*------  INCLUDES  ------*/

#include "FuncEval.hpp"


/*-----  MAIN  -----*/

void main()
{
   FuncEval *func = new FuncEval;
   double result;
   char *eq;
   double X=0.0, Y=0.0;
   char buffer[128];
   int errnum, errpos, i;

   printf("\nFUNCTION EVALUATOR PROGRAM BY RANDY C. FINCH\n\n");
   printf("Enter equation: ");
   eq = gets(buffer);
   while (*eq) {
      errnum = func->Convert((UCHAR *)eq);
      printf("Converted equation: %s\n",eq);
      if (errnum) {
         errpos = func->GetErrPosition();
         printf("                    "); // 20 spaces
         for (i=1;i<errpos;i++) { printf(" "); }
         printf("^%d\n",errpos);
         printf("Error %d: %s",errnum,func->GetSyntaxErrMessage());
      }
      else {
         while (Y != -1.0) {
            printf("Enter X: ");
            X = atof(gets(buffer));
            printf("Enter Y: ");
            Y = atof(gets(buffer));
            result = func->Evaluate(X,Y);
            printf("The result is: %f\n",result);
         }
      }
      Y=0.0;
      printf("\n\nEnter equation: ");
      eq = gets(buffer);
   }
   delete func;
}
```

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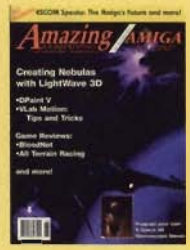
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Volume 10, Number 5 May 1995
New Products and other neat stuff, Use a VCR to Back-up your hard drive, check out a new series of CD-ROMS and more.
NAB '95, The DraCo Amiga emulator, NewTek's Toaster for Windows NT, Trinity from PLAY Inc., and several new tower cases for 4000 owners at the National Association of Broadcasters in Las Vegas.
Digital Image Special FX, Color correction 1.02: Advanced 1-To-1 pixel transformations, by William Frawley.
Transporter 2.0, Move single frame or compressed animation files to video with a single frame controller, by R. Shamms Mortier.
Bit Movie '94, See the Amiga used in winning entries and art displayed here is some of the best in each category.
Two Genie Tool Tutorials, A PInstance tutorial example and an FFDeform and Bones example, by R. Shamms Mortier.
Using Postscript fonts with Professional Page, A tutorial on the use of Postscript Fonts in Professional Page without the use of the CG-conversion program, by Douglas Nakakihara.
On Line, A look at some programs on the nets that should help keep your Amiga hopping, database programs, and more, by Rob Hays.
Inside ARexx, A handy and ingenious ARexx macro for Directory Opus that allows you to view the contents of LHA or LZH compressed archives, by Merrill Callaway.
Alien Breed Tower Assault, The third and final game in this series is one of the easiest, but also proof that the Amiga can still provide an exciting arcade experience, by Jason D'Aprile.
Rise of the Robots, A review of the hyped CD32 release, by Jason D'Aprile.
Fred Fish Disks 1041-1060, An Amiga specific E compiler, DiskSpare 3.0, SuperDuper 3.13, a great Chess game, and more from the Fred Fish Library.
The Commodore Auction, A race to discover the outcome of one of the most-watched auctions in the computer community, as AC rushes to provide you with the best information available.



Volume 10, Number 6 June 1995
New Products and other neat stuff, Help Wanted Service for Graphic Artists and Animators, Accelerators for the A4000/40 and the A2000, and more!
Creating Nebulas With LightWave 3D, Unlock some of the greatness of LightWave by recreating those awe-inspiring background nebulas often seen surrounding Babylon 5, by William Frawley.
DPaint V, Is this much awaited upgrade to Electronic Arts' major contribution to the Amiga for everyone? By R. Shamms Mortier.
Connect with ENLAN-DFS 2.0, Network your Amigas for maximum performance and full Amiga productivity, reviewed by Shamms Mortier.
VLab Motion: Tips and Tricks, Use VLab Motion's editing software package, MovieShop, and ARexx to ease your animation tasks and more, by Douglas J. Nakakihara.
Revitalizing the X-Specs 3D Stereoscopic Glasses, Program your software to use the XSpecs.library and create 3D viewing on your Amiga, by Randy Finch.
ESCOM Interview, Manfred Schmitt of ESCOM AG speaks directly on the future of the Amiga, ESCOM's plans and more.
BloodNet, Journey through the streets of Manhattan and Cyberspace in 2094, by Rob Hays.
ATR: All Terrain Racing, Team 17's ATR is an overhead, small sprite racer with a sci-fi bent, by Jason D'Aprile.



Volume 10, Number 7 July 1995
New Products and other neat stuff, The Amiga 4000 Toaster Oven Tower from Anti Gravity, Photogenics 2.0, make your own hidden 3D images, and more.
ESCOM creates Amiga Technologies, ESCOM ends specualtion on their plans for the Amiga as they hold a press conference for journalists.
Brilliance Tutorial, Use the power of this program to create realistic still masterpieces fit to hang in any gallery, by Marc Hoffman.
Basically Bone, Our authors use the Amiga to train young doctors and keep the files where they belong, by Michael Tobin MD.
On-Line, Keep your electronic messages safe, discover a way to retain your clipboard information, and more, by Rob Hays.
DirWork 2, Use this point and click interface to speed your way through the Amiga's disk functions and file handling, by George Evans.
Beginning Assembly, In his third installment, Bill Nee demonstrates the Amiga's libraries and how to utilize them.
Amazing Artist, Marc Hoffman demonstrates his abilities at creating other-world scenes on the Amiga.
Litil Divil, Try your luck in the lower labyrinths of this dungeon folly filled with puzzles and twisted routes, by J. D'Aprile.



Volume 10, Number 8 August 1995
New Products and other neat stuff, Genealogy Tools, an Expansion for the Toaster 4000, Northwest Public Domain joins Zipperware, and more.
Aladdin 4D 4.0, "At a price that belies its exhaustive power, Aladdin-4D 4.0 remains an Amiga artist's and animator's miracle package," by R. Shamms Mortier.
Pro Vector 3.0, The drawing program that works in vector instead of pixel formats while supporting tracing, AGA, ARexx, and more, reviewed by R. Shamms Mortier.
Photogenics 1.2, Learn to create and manipulate images with the same program as Photogenics takes on the market with features unlike any other package of its kind, by R. Shamms Mortier.
On-Line, The Device Masher System or What is the best way to compress a disk full of data and more, by Rob Hays.
AndFurtherMore..., Paradigm Productions, of Memphis, Tennessee has taken 3D design and computer graphics and has built a company on creative animation services, by Belinda Jones.
Super Stardust, You are a lone fighter who must destroy an asteroid onslaught as well as out maneuver menacing aliens, reviewed by Jason D'Aprile.
Zeewolf, A helicopter arcade shoot-em-up, reviewed by Rob Hays.



Volume 10, Number 9 September 1995
New Products and other Neat Stuff, A

Tower Case for the A1200, tools for LightWave 3D, hundreds of royalty-free photo images on CD-ROM, and more.
Fun with Fiber Factory, Fiber Factory will quickly become an essential part of your creative options while also being easy to use, reviewed by R. Shamms Mortier.
Impact! 1.0, Finally, a real LightWave physics engine, giving LightWave 3D users the ability to design objects, apply attributes, and let the laws of physics do the rest, reviewed by R. Shamms Mortier.
Advanced Amiga Analyzer, Sooner or later, something is going to go wrong with some part of your Amiga system. Start here to discover the source of the malfunction, reviewed by Ernest P. Viveiros.
WaveMaker 2.0, WaveMaker's prefab choreographics and utilities may be just the tool an Amiga animator needs in order to meet crunching deadlines and leave the studio before midnight, reviewed by R. Shamms Mortier.
On-Line, Take the first step in the long journey through the Internet jungle as AC's premiere wired authority explains where the Internet came from and where you can travel, by Rob Hays.
Overlord, Join the RAF in WWII as they switch from defense to offense and battle the Germans over Europe, reviewed by Rob Hays.



Volume 10, Number 10; October 1995
New Products and Other Neat Stuff, Aminet CD-7, World-Info '95, Guru-ROM V6, and Cd-Write round out this issue's New Products section.
Final Writer 4.0, The quest for a better word processor in a post-Commodore World, by R. Shamms Mortier.
StereoLithography, This new technology opens the doors for an inexpensive way to make movie props, prototype parts for molds, and countless other projects, by Mike Danger.
AsimCDFS 3.0, Enlighten your CD-ROM with a AsimCDFS, a compilation of useful modules that allow your Amiga to speak to your CD-ROM, by R. Shamms Mortier.
Bit Movie '95, Take a look at the winners of this year's biggest European computer art show, plus information on how you can submit your art for next year's contest.
Aladdin 4D: Tutorial #15, Eden City: the first block, by R. Shamms Mortier.
Exploring LightWave 3D 4.0: The Book, A review of a must-have book for LightWave 3D 4.0 users, by R. Shamms Mortier.
Hop and Hop 'N Bop, A comparitive review of several Amiga and CD32 games in the Hop 'N Bop platformer style, by Jason D'Aprile.
Online, Travel to the new Hot FTP sites, by Rob Hays.
And Furthermore..., Hot web sites visits the hot Amiga web sites now as close as your modem.



Volume 10, Number 11; November 1995
ShapeShifter 3.1, Find out whether or not the Macintosh and the Amiga can find peace at $40, as this powerful shareware product permits the Amiga to run Mac software, by Marc Hoffman.
TrueBrilliance, Discover the secrets and fun of creating your own universe with Brilliance, and learn how to creatively produce a star background and populate it with your own heavenly bodies, by Shamms Mortier.
ChestNet, Can the Amiga be programmed to recognize disease and more from X-rays? Listen to the Amiga's favorite radiologist as he describes his specialized program, by Michael Tobin, M.D.
On-Line, A continued exploration of the Amiga on the Internet by discussing, newsgroups and the advantage of telnet, by Rob Hays.
FinalCalc, Looking for a spreadsheet program for the Amiga? See if FinalCalc offers you a few new opportunities, by Merrill Callaway.
Family Connections, Turn those family stories and ancestral history into a genealogical database of your family. This specialized database should lead you on a merry climb through your family tree, reviewed by Shamms Mortier.
AndFurthermore..., Ever wish you could design the Amiga of your dreams? Amiga artist, Dave Matthews has already created his. Take a look at his renderings and then apply your own artistic talents to the challenge.
Labyrinth, With outstanding graphics, and exceptional soundtrack, as well as a good story, some may think Labyrinth should be praised higher than its moist cousin, reviewed by Jason D'Aprile.



Volume 10, Number 12; December 1995
New Products & Other neat stuff, Amiga Technologies announces a new monitor, a mondular screensaver called Aurora, XiPaint v3.2 and TurboCalc V2.1 from GTI GmbH, Nova Design's ImageFX 2.1a upgrade, and much more!
Mand 2000: The Fires of Chaos, Mand 2000 is a newly released CD-ROM version of Cygnus Software's Mandelbrot-based fractal picture generating software, by Shamms Mortier.
Persistence of Vision Ray Tracer, Persistence of Vision Ray Tracer POV ray traces is a powerful3D artist's tool capable of creating stunning imagery, and it's free! By Dave Matthews.
Directory OPUS V5.11, What possible improvements could have been put into this already best of all directory utilities? Find out who should and should not use this latest version, reviewed by Merrill Callaway.
Altering Photos in PhotoGenics, Tour some of the special effects of this image manipulation package and discover if you should add it to your other Amiga graphics tools, by Shamms Mortier.
On-Line, Explore how telnet can be used to augment the services available from your internet provider, by Rob Hays.
AndFurthermore..., On Thursday, November 2, 1995, Petro Tyschtschenko, of Amiga Technologies, gave a speech in L.A. to a group of Amiga enthusiasts and journalists. Here's what he had to say.
3 Sci-fi 3D Animated Adventures, If you are a science-fiction fan, check out the following 3 game titles: DarkSeed by Cyberdreams, Beneath a Steel Sky by Virgin, and Universe by Core Design, reviewed by Jason D'Aprile.



Volume 11, Number 1; January 1996
New Products & Other neat stuff, Catch the latest CD collections with games, utilities, demos, samples, and other shareware items, a new video magazine on video, a new start-up Amiga developer and more.
MacroForm: Power Modeling in LightWave 3D, MacroForm makes your modeling life easier because, with just a tap of one key, you can access modeling tools that are either new to LightWave or expand upon its creative options.
ImageFX Magic, Apply a little "White Magic" to some of your graphics and enjoy a world of difference, by Shamms Mortier.
On-Line, Travel the Internet with MUCK, MUD, and MUSEs while learning what to expect from main service providers, by Rob Hays.
Physics Lab in Mechanics, The Amiga has an educational reference on Physics that is a must for programmers, videographers, and students, by Shamms Mortier.
Welcome to My Studio A Personal Studio Overview, Can four Amigas of various vintages find hope, happiness, and enrichment with a Pentium and a Power Mac? By Shamms Mortier
Amiga Dealer Yellow Pages, Where have all the dealers gone? Check out this latest list of approved Amiga dealers from SMG, the new Amiga distributor for North America.
Simple Stat Graph, Statistics on the Amiga do not need to be hard or uninspiring with this detailed package by a one-an Amiga developer. By Shamms Mortier

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(continued from page 48)

addresses of its nameservers. This last will be a string of numbers such as 149.174.211.5. Also verify that you have what is known as a dynamic PPP link. This means that each time you connect you are assigned a different IP address. This is the information needed by the rest of the internet system to find you.

Once you know these bits of data, log on to your provider manually with the capture buffer of your terminal program on. Answer whatever questions you normally answer, such as username, password, etc. Follow whatever menu prompts or commands your provider requires to initiate a ppp connection. Once you have done this, close and save your buffer. This will become your template to modify one of the example scripts.

When you are ready to begin, load one of the example scripts into a text editor, such as ED. Each line either contains a command, such as ECHO OFF, or contains an installation prompt such as ;INSTALL Enter the modem initialization command. When the iNTERiNSTALL script comes to a line that begins ;INSTALL it displays the part that follows on your screen during the installation process and waits for your answer. The following line always reads SEND "$RESPONSE", and the installation script replaces the $RESPONSE with your answer to the question. When you compare your capture buffer with an example script, it should be obvious what modifications you will need to make to the script.

When you have finished, follow the instructions in the readme file in the iNTERiNSTALL package. Make sure your modified script is in the directory, and start the installation script. After answering the questions, you should be left with a working AMosaic/AmiTCP/IP setup.

Before you run AMosaic for the first time, there is one more detail to take care of. The location of the AMosaic home page has changed since the 1.2 package was put together. Open the AMosaic drawer, click once on the AMosaic icon, and select Information from the Workbench Icons menu. In the Tool Types window will be a line that reads:

```
http://insti.physics.sunysb.edu/AMosaic/
```

Click once on this line, then click the Del button. Click the New button and type the following line EXACTLY:

```
http://www.omnipresence.com/Amosaic/2.0/
```

Click the Save button, and you are all set. This Tool Type is the address AMosaic connects to when it is first started. You may wish to change this later, but for now this is a good starting point.

Where Are The Files I Need?

AMosaic1.2

On CompuServe, go to AMIGAUSER Forum, in the Networking library, and get the file MOSTCP.LHA. On GEnie, it is file #23661. On Portal, the file number is 4842.3.13.68791.

MUI

You will find MUI 3.1 on GEnie as file #26633, as MUI31USR.LHA on CIS in AMIGATECH/System Utils. On Aminet look in the dev/gui subdirectory for mui31usr.lha.

AmiTCP/IP

From Aminet, get the file AmiTCP-demo-40.lha from the comm/tcp subdirectory. On GEnie get file #25104. From CompuServe, get the file TCP4.LHA from AMIGAUSER/Networking.

Mlink

I found Multilink as file #26657 on GEnie. On Portal it is split into two files, #4842.3.72.122220 is the Amiga half, while #4842.3.72.9648 is the Unix part.

ppp.device

Get PPP1_30.lha from the comm/net subdirectory of Aminet. On CIS PPP130.LHA is in AMIGAUSER/Networking. File #25111 for GEnie.

iNTERiNSTALL

Version 1.51 is file #26499 on GEnie. In AMIGAUSER/Telecommunications on CIS it is saved as IINST151.LHA. Aminet keeps iiNST_151.lha in the comm/tcp subdirectory.

Delphi users can go to the Telecommunications database, and get the file INTERNET TOOLS, and download everything needed in one package.

You can see from the above that I was unable to find some files on some of the systems. Be sure to search your favorite system first for new uploads since I collected this list.

Where To Find Me

R.Hays5 on GEnie
RHAYS on Delphi
72764,2066 on CompuServe
Rob Hays on Portal

Internet users, my provider has recently made a change that allows a shorter version of my email address: rhays@intersource.com.

For U.S.Mail:

Rob Hays
P.O.Box 194
Bloomington, IN 47402

Please include a SASE if you need a personal reply.

If you run an Amiga specific BBS, send me the information callers will need to access your system. Phone number(s), modem speeds, software settings, etc. As a service to the Amiga community I will include the information I receive in this column from time to time. Send the info to any of my addresses above.

That is all for now. See you On Line!

•AC•

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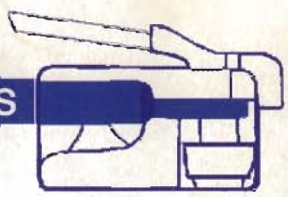
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on line

by Rob Hays

amiga telecommunications



AMosaic1.2, MUI, AmiTCP/IP, Mlink, ppp.device, and iNTERiNSTALL are all important Internet tools—discover what they are and where to find them.

Trying to find and install all of the pieces of software needed to begin using a graphical Web browser can sometimes make the search for the Holy Grail seem like a piece of cake. We look with envy at ads for products that promise one click internet access for other platforms. While several products of this type are rumored to be in development for the Amiga, currently we have to do it ourselves. As Amiga owners, we have always been a little more self-reliant than the average clone owner, and Web browser software is no exception. Here is the software you need, where to find it, how to install it, and what you will find with it.

What Do I Need?

First of all, you need an Amiga with a hard drive, Workbench 2.1, a modem, and an internet provider. These are bare minimums, especially Workbench 2.1. In order to have the graphic images that form major portions of most Web pages, you will need Workbench 3.0 or higher. This is because all current and projected Web browsers require Datatypes that are not available for 2.1 or lower. Your internet provider should offer the PPP connection protocol, but if you have what is known as a shell connection, such as Portal offers, this can be utilized with an extra piece of software.

Currently, there is only one Web browser available for the Amiga, and that is AMosaic. This is a port of the original Mosaic Browser developed at the National Center for Supercomputing Applications. The current Amiga version, 1.2, was done by Michael Fischer, Michael Witbrock, Michael Meyer, Graham Walter, and Steve Dunham. AMosaic is freeware, although the next version is rumored to be intended for commercial release. There is also an early beta version of another commercial browser called IBrowse, that was released as a demo in December 1995. Part of the rumor mill is an internet kit from AT/Escom that supposedly will be available soon.

To support the Graphic User Interface of AMosaic or IBrowse, you will need the MagicUserInterface. MUI is a shareware package by Stefan Stuntz that allows programmers an easy-to-use method for creating the GUI sections of their programs. It also allows users nearly unlimited ability to customize the way a program looks on their computer. MUI 2.0 or above is required for AMosaic version 1.2. MUI 3.1 has recently been released. It is required for IBrowse and highly recommended for the new versions of AMosaic.

You also will need some networking software. If you intend to connect to the internet, you will need AmiTCP/IP. As I mentioned in an earlier column, TCP/IP stands for Transmission Control Protocol/Internet Protocol. AmiTCP/IP is the Amiga port of TCP/IP, and while version 4.0 is a commercial product, there is a demo version that will work for our purposes.

If you are using a shell account, then instead of AmiTCP/IP, you will need Multilink. This is a shareware package by Ezra Story that contains software to run on your internet provider's Unix system, as well as software to run on your Amiga. Between the two of them, they emulate both the AmiTCP/IP and AS225 networking packages. Documentation is in AmigaGuide format, and an Installer script is included. Multilink is uncrippled shareware, with a $25 fee requested. Because my provider uses the PPP connection, I have not used Multilink myself, but many favorable messages have been posted by other users.

One other puzzle piece you will need is ppp.device. This is a software device that handles the serial port connection between AmiTCP/IP and the internet, and is a shareware package from Holger Kruse. A freeware evaluation version will allow you to get started, but a registration fee of $15 will get you a full version with much better performance. Multilink users and users whose internet connection uses the SLIP protocol do not need this software. Each of these packages contains other programs needed for their operation, as well as documentation.

If you don't already have it, you will need a copy of Lha to unarchive the files needed for the installation. Copy the file Lha138.run that you download to the ram disk, open a shell and type:

```
ram:
Lha138.run
```

When you press return, the files will be extracted from the package. Copy the Lha file to your c: directory, and it is ready to use. Lha version 1.38 is by Stefan Boberg, and is shareware, with a $20 donation requested.

Putting it all together

While it is certainly possible to install and configure all of these software packages by hand, it is not easy. As I recall, the first time I installed them, it took several hours spread over a couple of days. My monitor screen was a confused jumble of windows, with several text-readers displaying different doc files, and three or four copies of ED running while I modified various scripts (isn't multitasking wonderful!). All punctuated by attempts to connect to my internet provider.

Thanks to Christopher Laprise, we now have a much easier solution. iNTERiNSTALL includes an ARexx script, that will take all of the above software packages, install them, plug in information about your personal internet account, and construct the needed scripts. When you have finished the installation, double clicking a single icon will configure your modem, dial and log on to your provider, and start AmiTCP/IP. After AmiTCP/IP is running, start AMosaic and off you go.

The iNTERiNSTALL package includes four installation scripts for CompuServe, LogonAmerica, NetCom, and EmpireNet. If your internet provider is one of these, you are all set. If you have a different provider, it is very easy to modify one of the example scripts.

Before starting, verify with your provider its domain name, and the IP

(continued on page 46)

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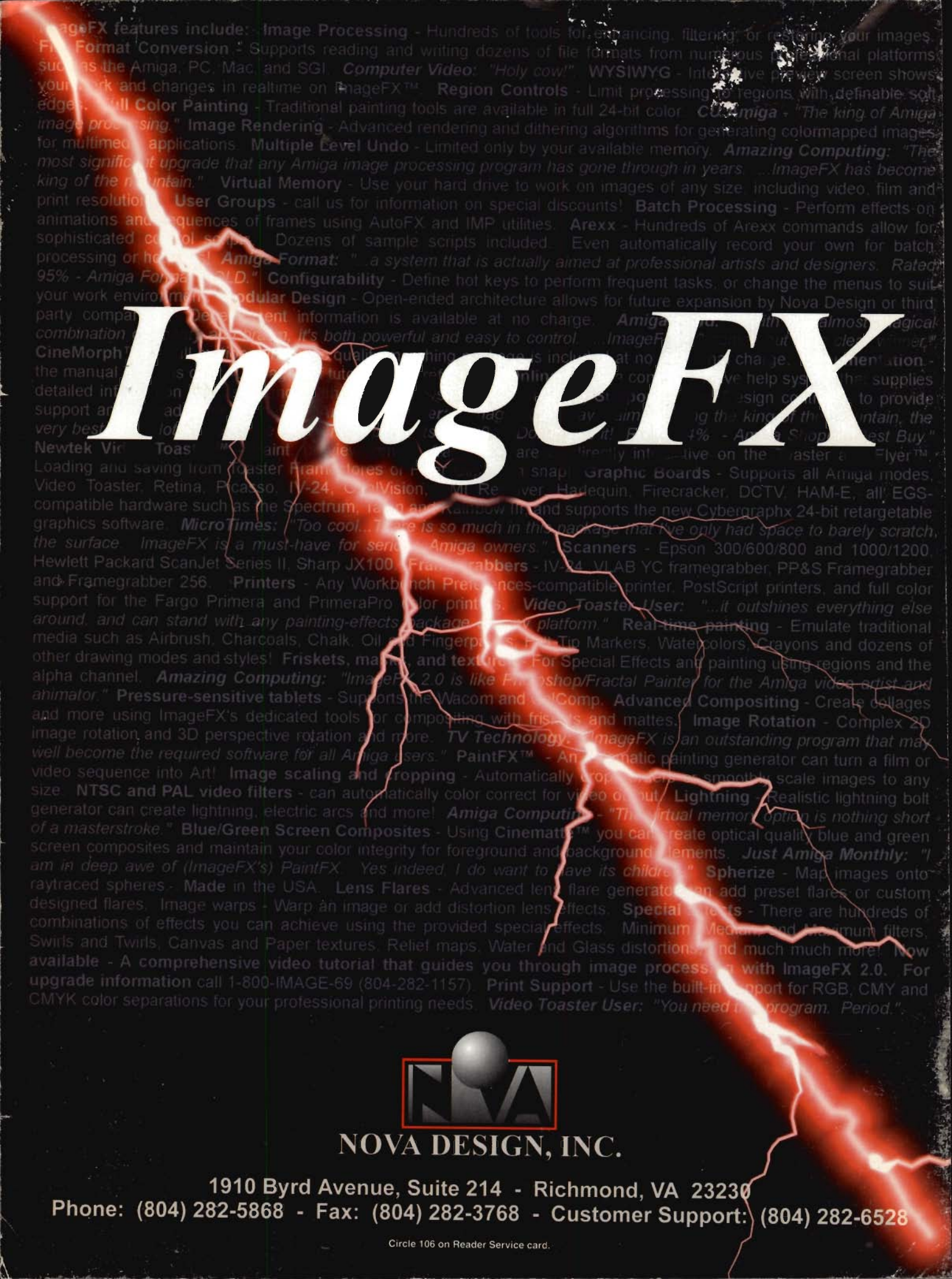
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